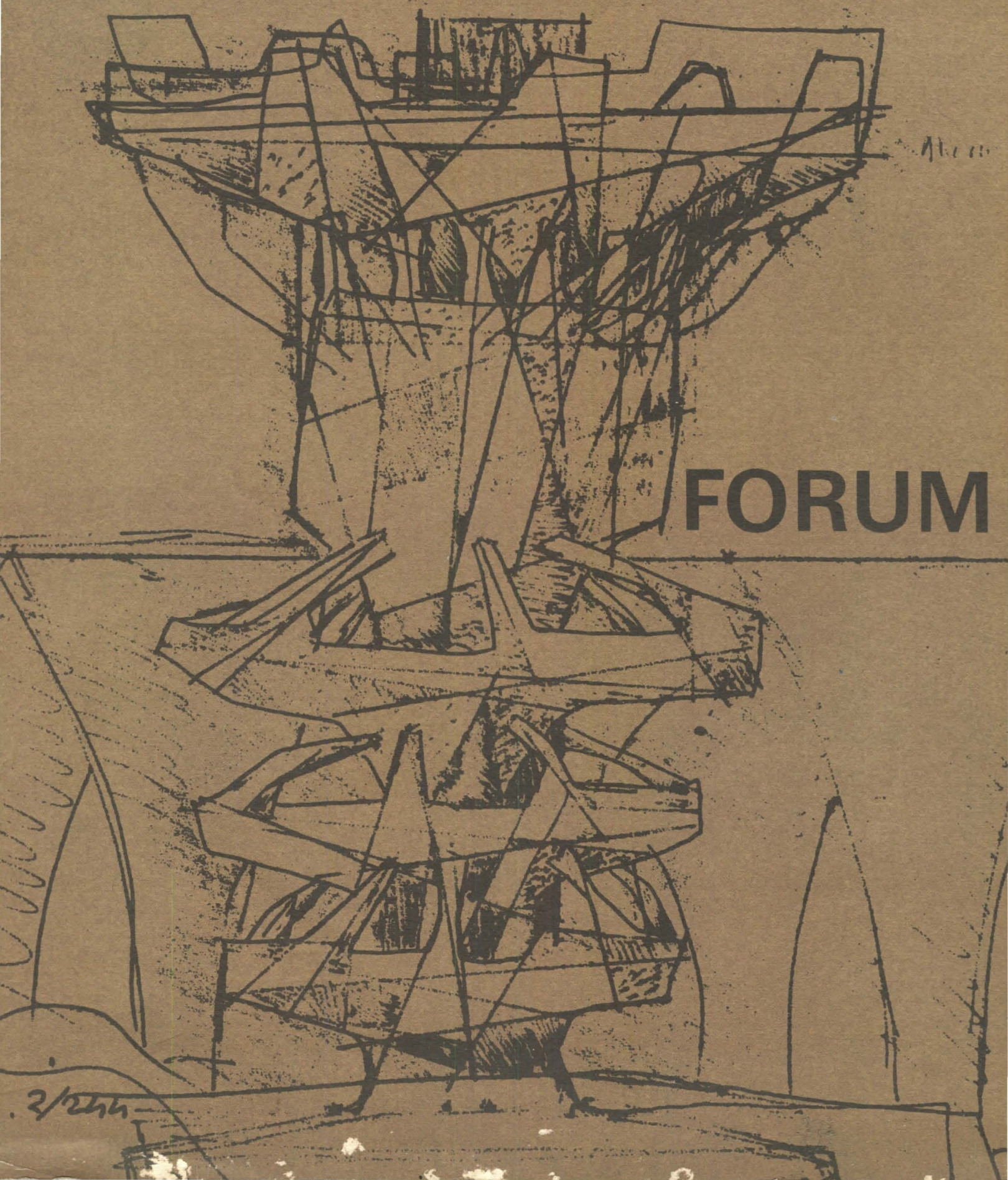
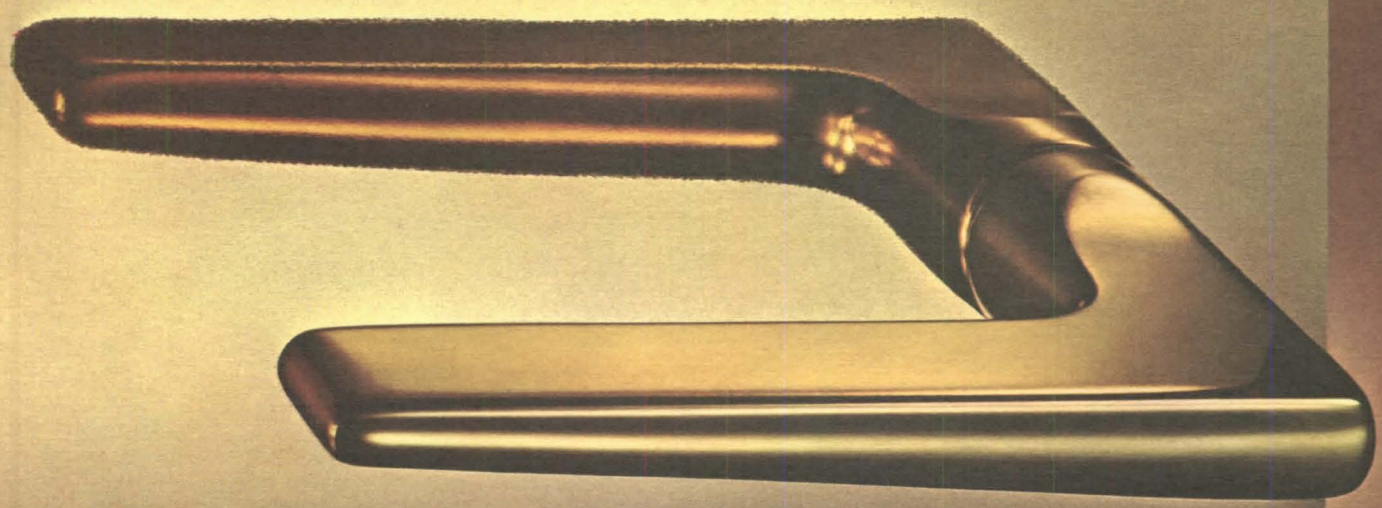


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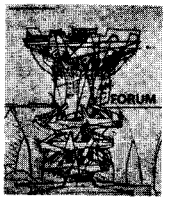
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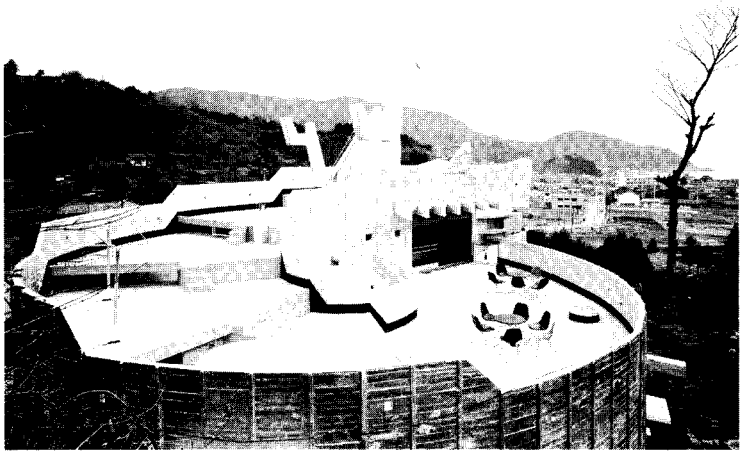
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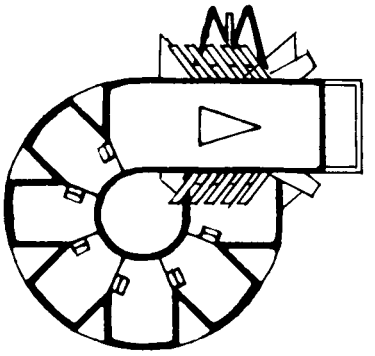
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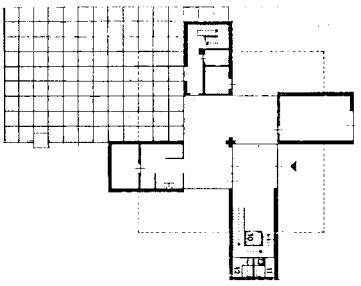


DRAGON FORT

The Minesaki Hospital (Japan) spirals upward on a hill—like a dragon—overlooking the ocean. Architect Yôji Wanataba chose the spiral form for ease of mobility of patients from one level to another; long flights of steps are eliminated in this plan. Cars transport the patients up a winding ramp into a central court, and entry is on the middle level. From here, patients move directly to examination or consulting rooms, or to the clinic.

The five main sections of the hospital face outward towards the sea and direct sunlight, and are topped by a roof terrace (top photo). Rooms are both in the Western and in the Japanese style, with either beds or tatami mats provided.

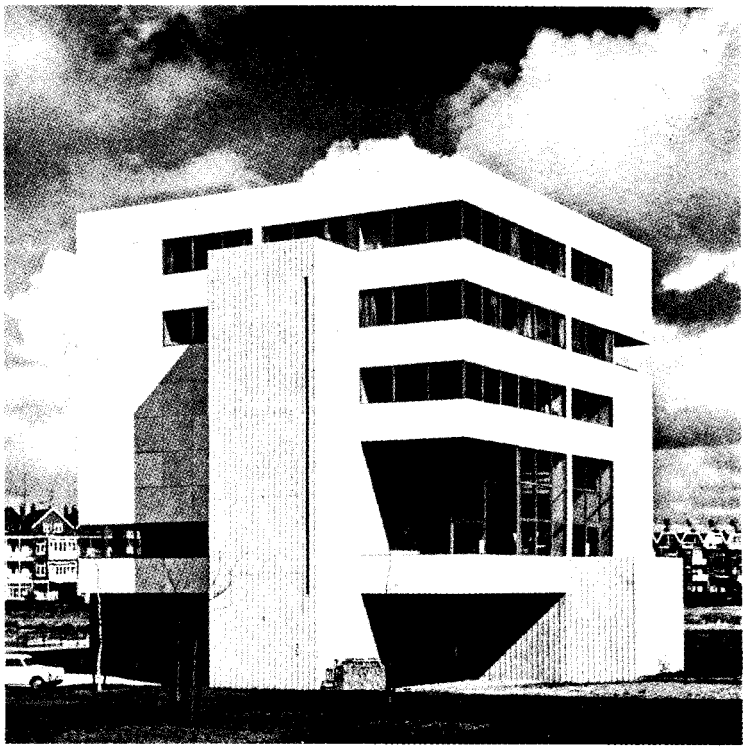
The entire structure is of rough-surfaced, board-formed concrete. Windows and doors are five-sectioned sliding panels in the Japanese style.

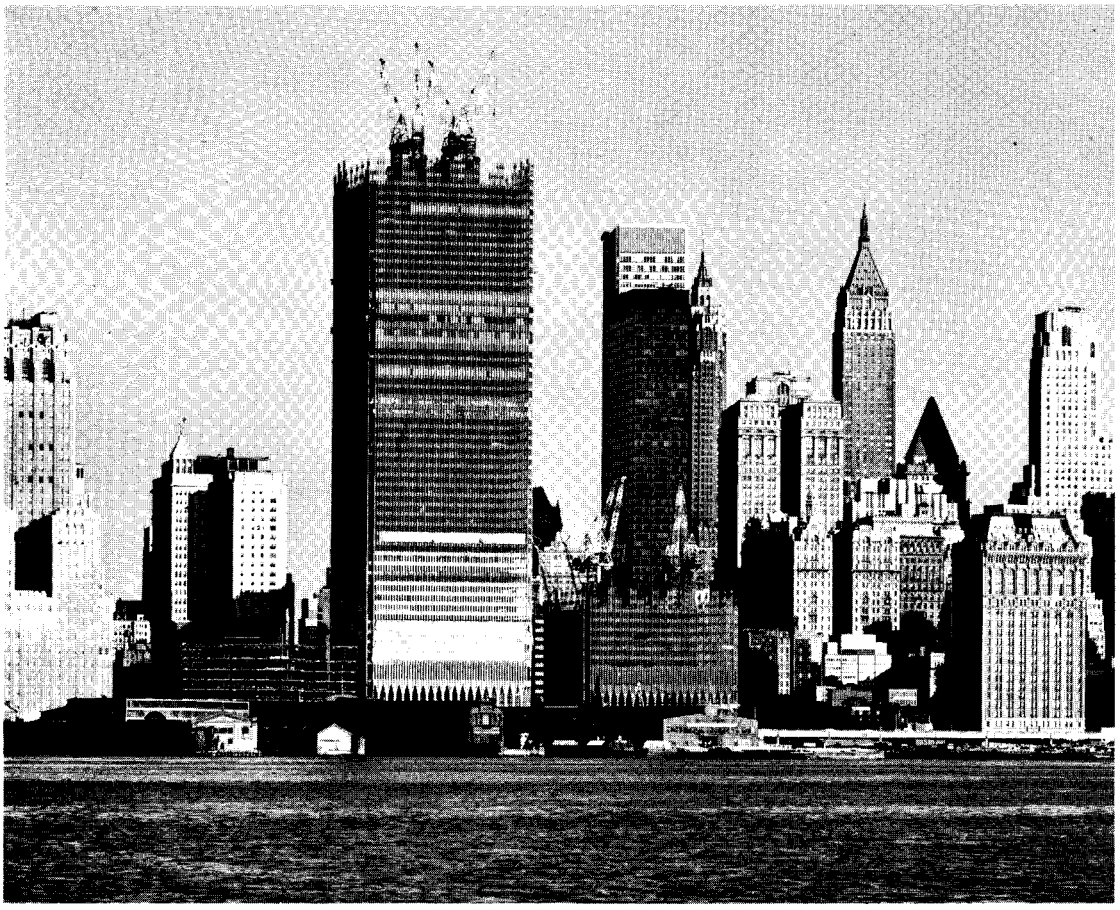


ECUMENICAL CUBE

The Ecumenical Center in Rotterdam, Holland, was a gift from the Church in Germany to the Dutch—as penance for the destruction of Rotterdam during World War II. German volunteers helped build the center.

The structure, a design of the late Gerrit Rietveld, van Dillen and van Tricht, is a perfect cube supported on four radiating service and stair towers. The center acts as a hostel, with a double-story lounge, auditorium, bedrooms, and activity areas, including a gym.



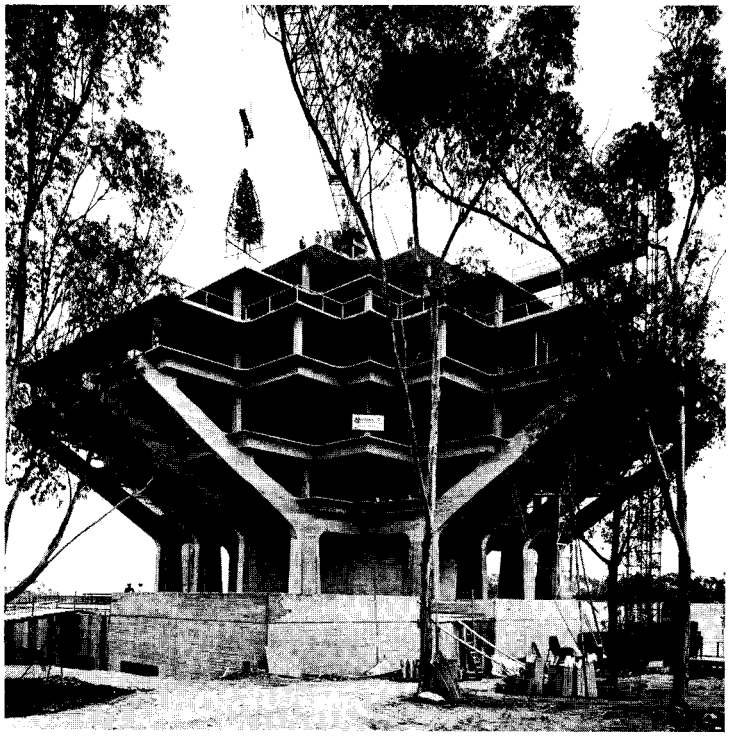


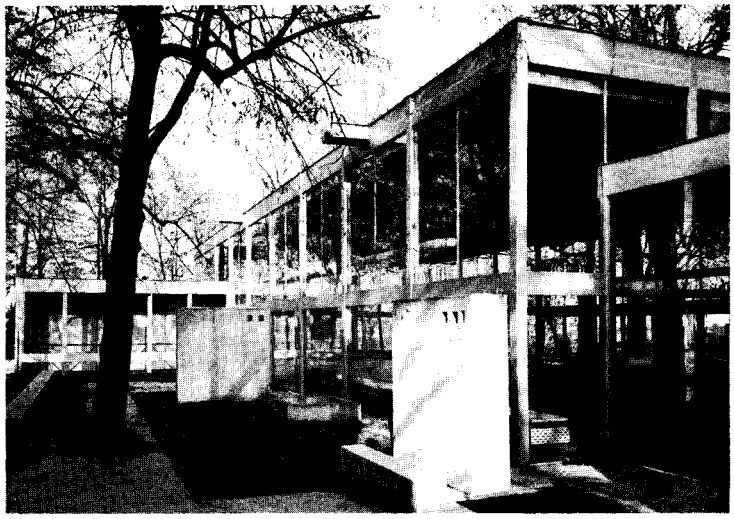
PART OF THE SKYLINE

What will be the world's tallest buildings, the twin 1,350-ft. towers of the New York World Trade Center, are already changing the scale of the lower Manhattan skyline. With steelwork rising three floors every 8½ working days, the first (north) tower is already 825 ft. high, making it the ninth tallest building in the world, nudging out the 813-ft. Chase Manhattan Bank. The north tower will be topped out this December; the second (south) tower will follow in June, 1971, and the entire trade center complex, which includes a plaza and four other buildings, will be completed early in 1973 at an estimated cost of $650 million. The owner for the trade center is the bi-state New York Port Authority and the firms of Minoru Yamasaki and Emery Roth are the architects. The Port Authority claimed to have met New York's new asbestos-spraying law (see page 27) even before it *was* a law. But spraying was subsequently halted (whether in response to a summons or to avoid one could not be learned).

STACKED LIBRARY

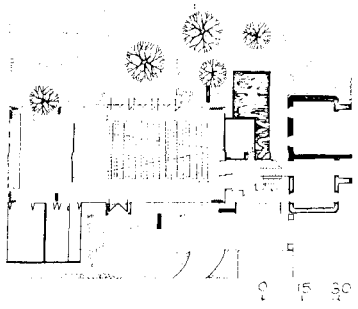
This summer the unique Central University Research Library at the University of California will open at San Diego. Designed by William L. Pereira Associates, the 100-ft.-high concrete structure cantilevers five levels over a two-story-high "podium" which itself rests on a single-story base. The upper floors, supported by massive "slope-beam" columns, contain the library's 700,000 volumes, and carrels for 1,250 students; elevators serve these floors.

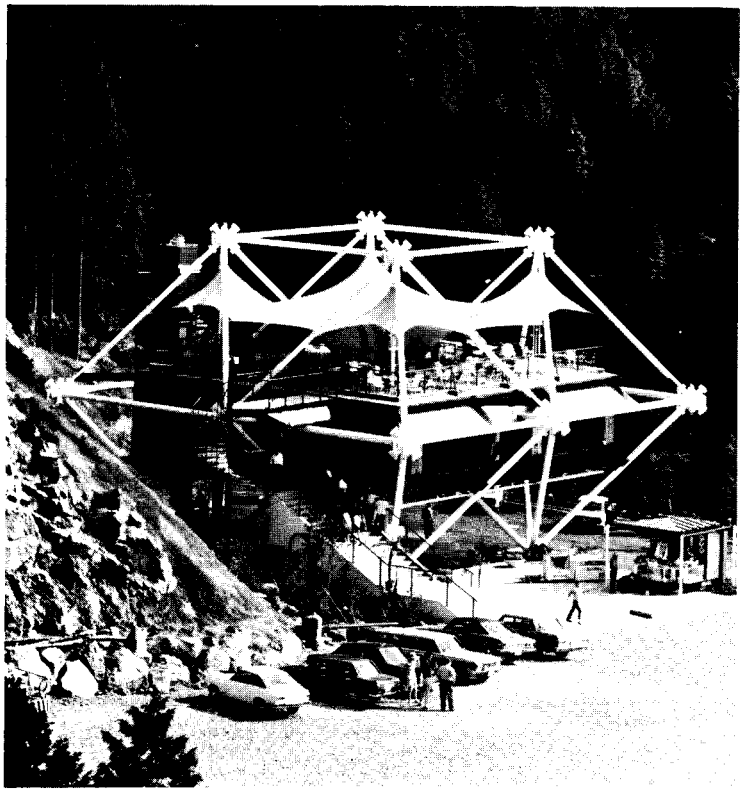




POLISH PAVILION

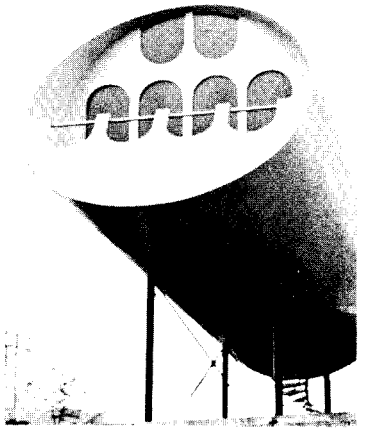
An extension to the Warsaw headquarters of the Polish Architects Association (SArP) was built by four young architects who gave of their services without charge. Marek Bieniewski, Jerzy Jozefowitz, Krzysztof Moldzynski and Jerzy Przeradowski designed the glazed double cube in contrast with the 19th-century Zamoyski Palace and park. Palace entrance to the exhibition pavilion is cantilevered over a pool; the main space houses projection and meeting rooms.





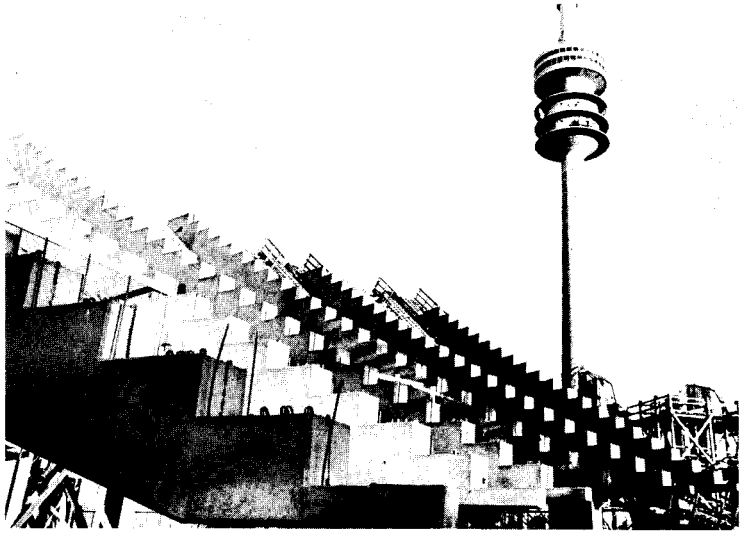
HIGH LIFE IN A TUBE

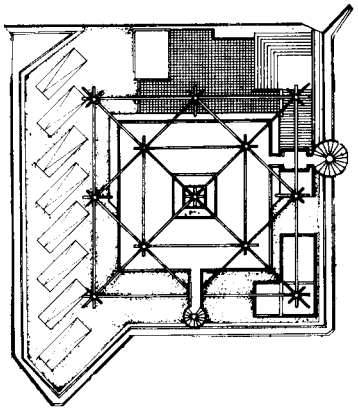
Overlooking a recent agricultural fair in St. Gallen, Switzerland, was this 50-ft.-long prototype plastic tube-house designed by Swiss Architect Franz Ullrich Dutler. The tube's facade, like a mini-Metropolitan Opera House minus the Chagalls, is the living-room view plus balcony. Other rooms include a bedroom, a bath, and a kitchen. Entrance to the house is by way of an exposed spiral stair.



SUPER STADIUM

Under construction (below) is the huge stadium for the 1972 World Olympics to be held in Munich. The stadium will be covered by a translucent tent-roof and will hold 80,000 spectators. In the distance in the photo is the 950-ft. television tower which will relay the games. The tower, highest in West Germany, stands at the edge of the Olympic area, and is visible from every point of the grounds.



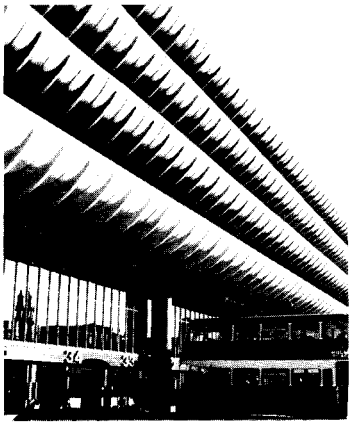


HOT DOGS IN JAPANESE

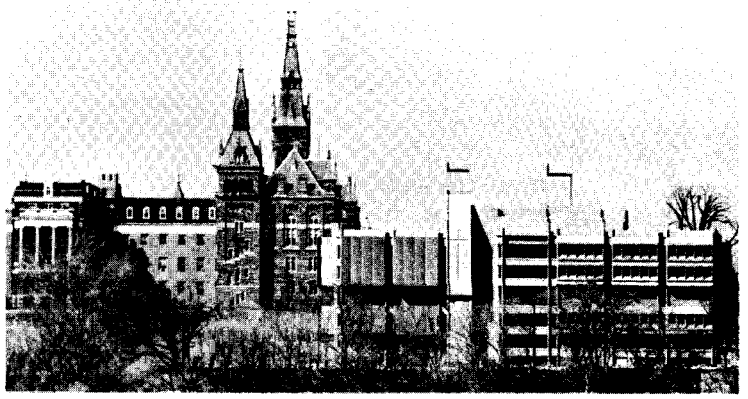
An Oriental version of the roadside hotdog stand is this steel-pipe spaceframe designed by Noriaki Kurokawa & Associates, which is in a mountain clearing off the highway in Otome, Japan. Drivers may partake at a small outdoor concession booth, or may dine in a glassed-in room suspended from the frame. An outdoor dining terrace is covered by a bright red tarpaulin in striking contrast with the stark-white painted pipes of the spaceframe enclosed structure.

BULGING BUS DEPOT

Part of a redevelopment scheme for downtown Preston, England, is the largest bus terminal in Europe. The £1.1-million, 600-ft.-long station with 80 loading gates was designed by Keith Ingham of the Building Design Partnership. The bus station plus a multistory parking garage of reinforced concrete—for 1,100 cars—was built in under 18 months. The station's own shopping concourse leads to an extended pedestrian shopping mall extending into the town center.







COMPLETING A QUAD

John Carl Warnecke's controversial library for Georgetown University in Washington, D.C., is finally open after months of hassle and construction. The 200-sq.-ft., 80-ft.-high structure completes Georgetown University's academic quadrangle; most of the controversy centered on its relation to Gothic Healy Hall (left in photo). The library is of matching grey granite aggregate, and its sculptured protruding bands of carrels offset Healy's own textured walls.

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FOCUS

(*continued from page 7*)



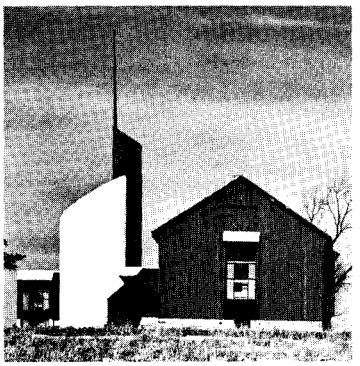
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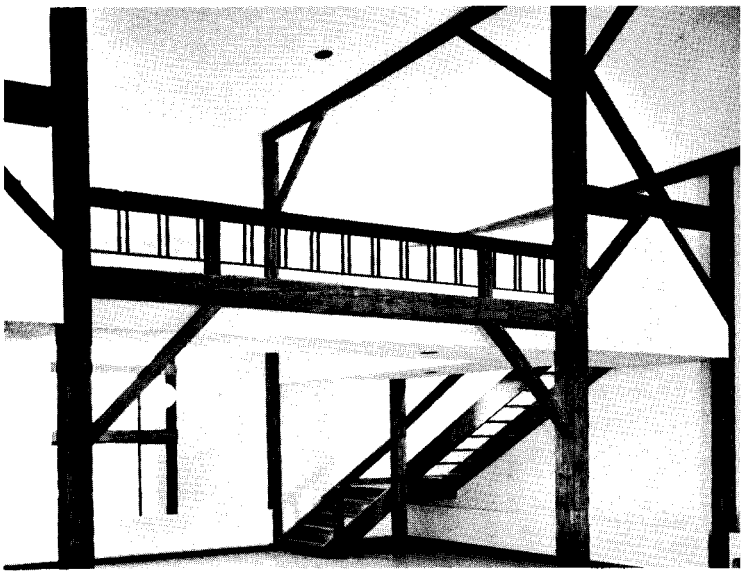
An almost-instant vacation house is the O'Dome designed by C. William Moss. The O'Dome, in 15, 20, or 25-ft. diameters, can be erected by two people in less than three hours. It consists of 18 wall panels (in a combination of colors), a 5-ft.-diameter bubble skylight, and 8-ft. sliding glass door components. It weighs only 1,600 lbs. and it can therefore be transported easily.

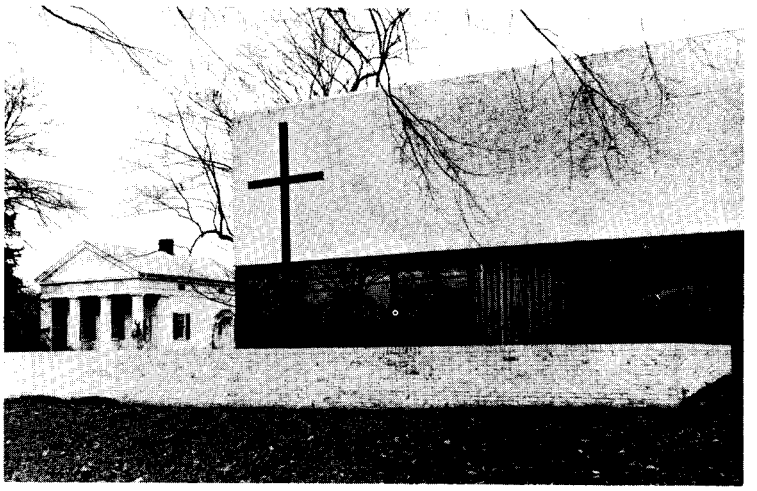


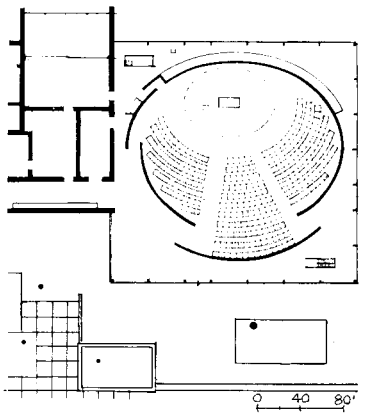
BARN INTO CHURCH

A restricted budget was the main criterion for the conversion of a barn into a sanctuary and fellowship hall in farmland Illinois. Architects Rowe, Abplanalp, Johnson used the old beams, and stone walls which they sandblasted and stuccoed. The silo was cut, and houses the church office and pastor's study. Plans for future development for educational facilities are underway.



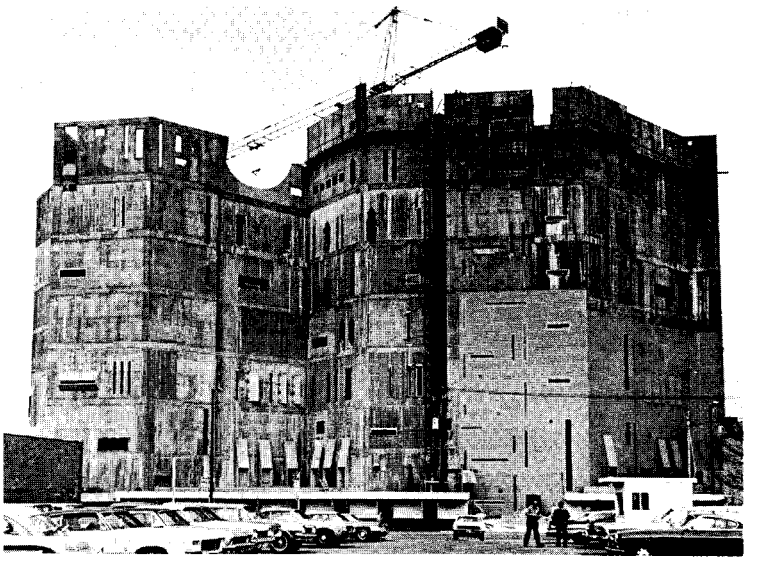






SIMPLE SANCTUARY

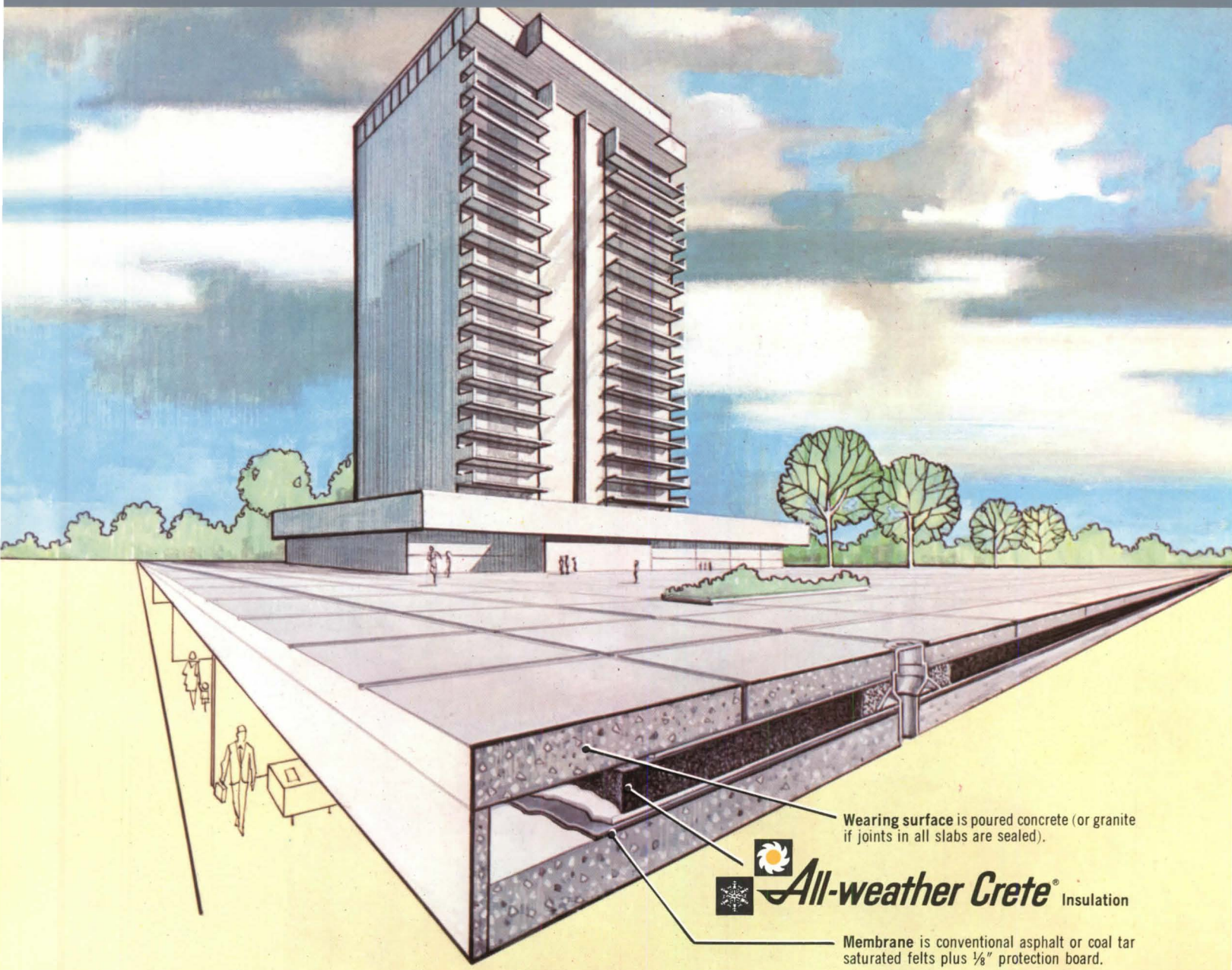
A new addition to a small complex of buildings for the Episcopal St. Clare of Assisi Mission in Ann Arbor, Mich., is this brick, steelframe, and glazed glass sanctuary by Architect David W. Osler. Osler wanted the sanctuary to be totally simple so that it would not clash with the Greek Revival residence (left in photo) or with another chapel and an existing church.



HULKING MUSEUM

The monolith rising up in downtown Denver, Colo., is the new Denver Art Museum, designed by Architects James Sudler Associates with Gio Ponti as collaborator. The enormous six-story-high, 200,000-sq.-ft. building will double the exhibition space of the existing museum, and will be attached to its south wing. The museum will be constructed in two phases, and in two wings. The entire structure is to be sheathed in glass tiles.

PHOTOGRAPHS: Page 6 (top), Cervin Robinson; (bottom left), Marvin Rand; (bottom right), Janusz Smogorzewski; page 7 (top left), Masao Arai; (top right), Keystone; (bottom right), J. Russell Lawrence; page 9 (bottom left), Philip A. Turner; (bottom right), Floyd H. McCall.



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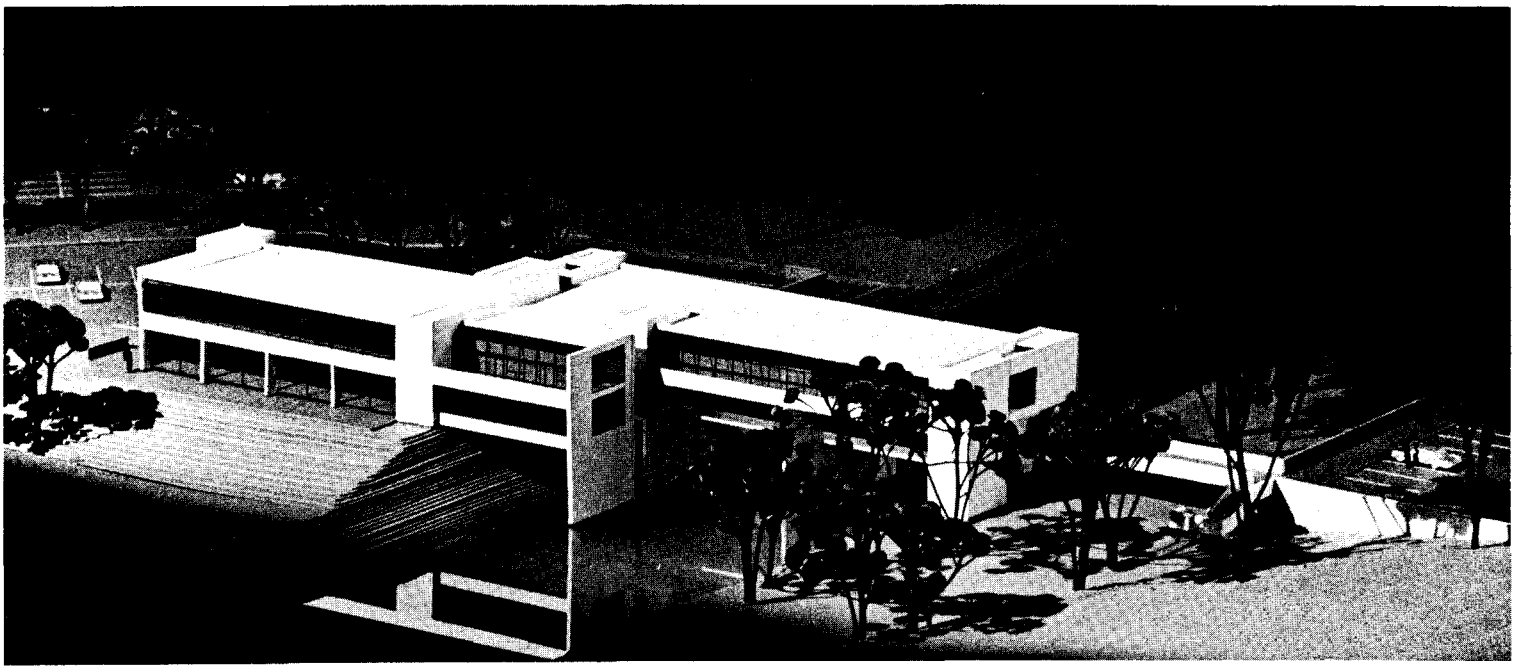
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MENTAL HEALTH BRIDGE

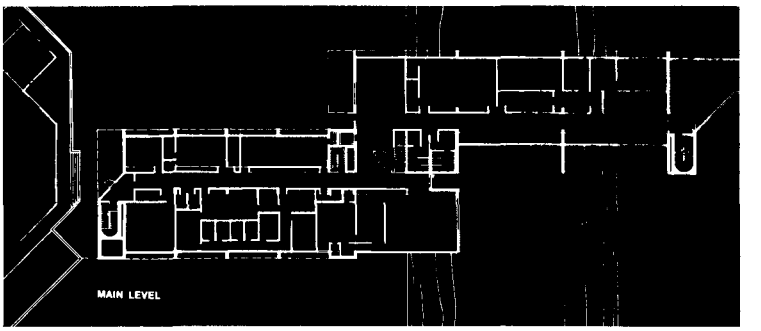
One of the next architectural landmarks of Columbus, Ind. (see March issue) will be a community mental health center spanning a stream. Making the center a bridge between the county hospital and a lively public park may seem symbolic, admits Architect James Stewart Polshek, but the scheme was actually a solution to a siting dilemma.

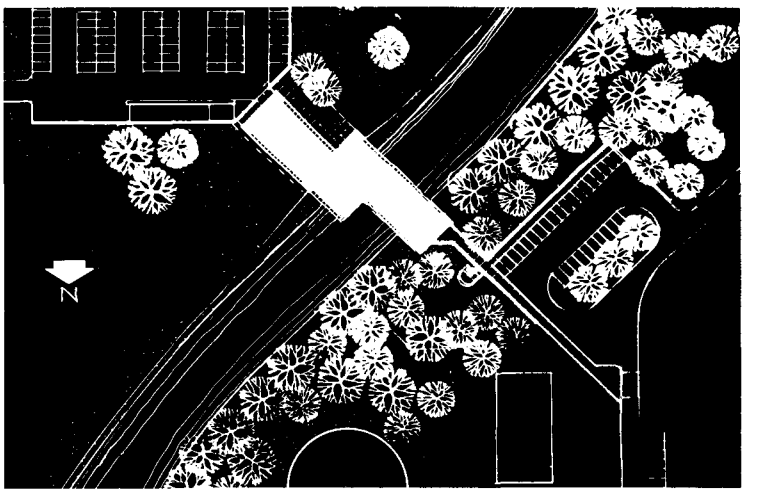
The land allocated for the center was at the rear of the hospital property, accessible only through a service drive and a staff parking lot. It was an inconvenient approach for patients, and a dismal one for a center whose "hospital" image was to be played down. In the park land just across the creek, Polshek saw an opportunity to provide attractive patient access. Because land along the creek is subject to flooding, any structure there would have to be raised on piers or fill, so the bridge scheme added little to the cost.

The building plan, based on two offset rectangles, cuts the central corridor into two segments, joined at a broad middle section housing the central lounge and main stairway. On the upper floor are consultation rooms in the west wing and inpatient rooms in the east wing.









(continued on page 15)

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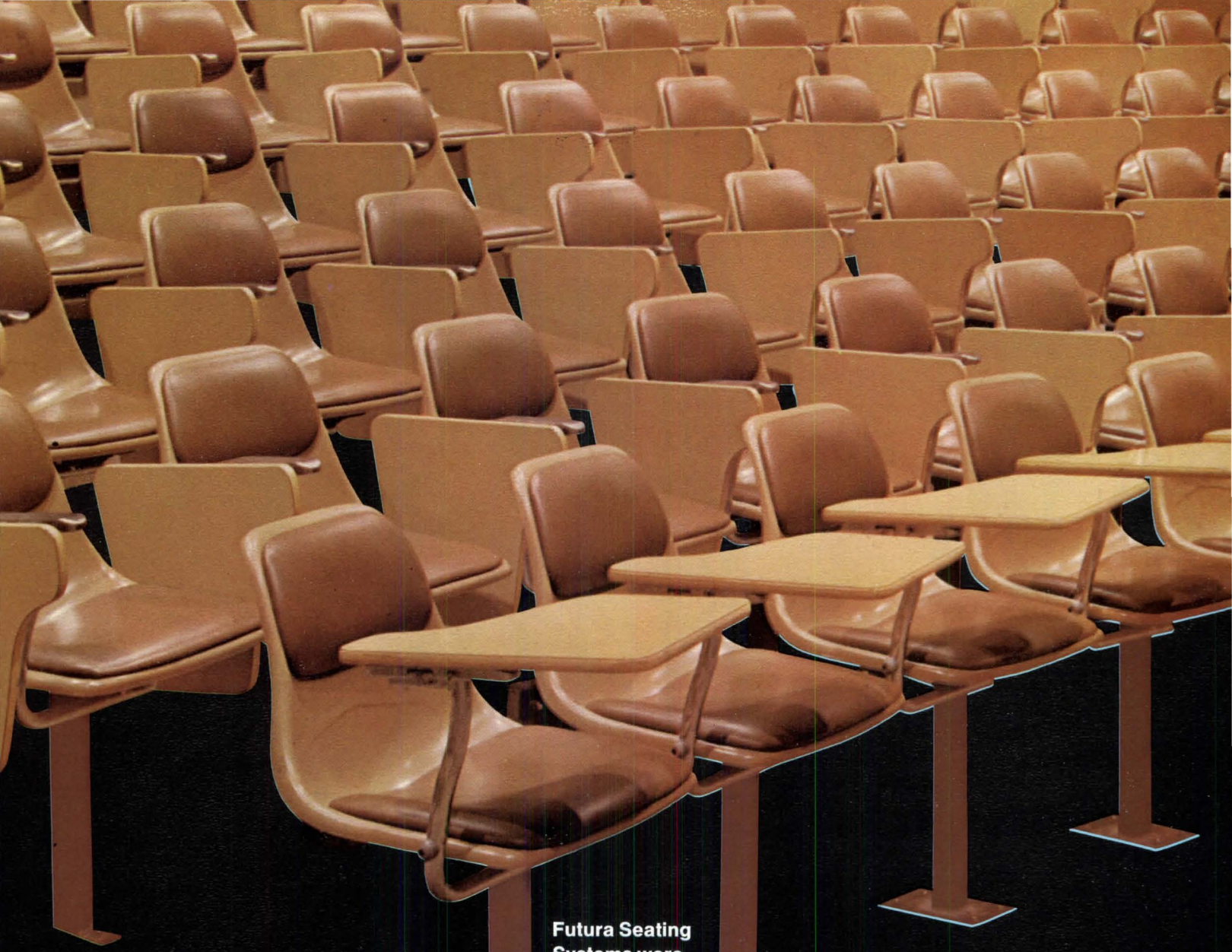
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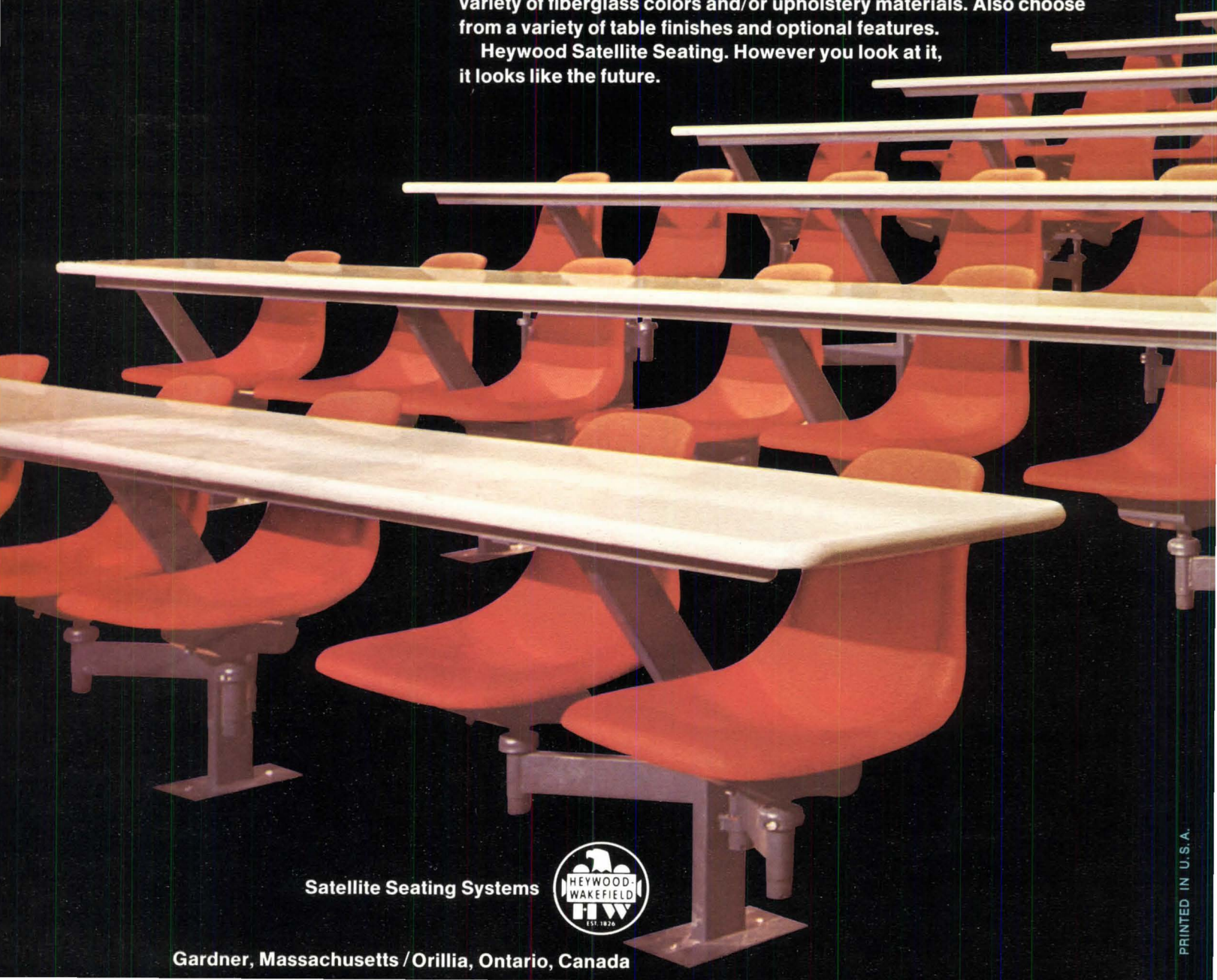
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Satellite Seating Systems

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PREVIEW

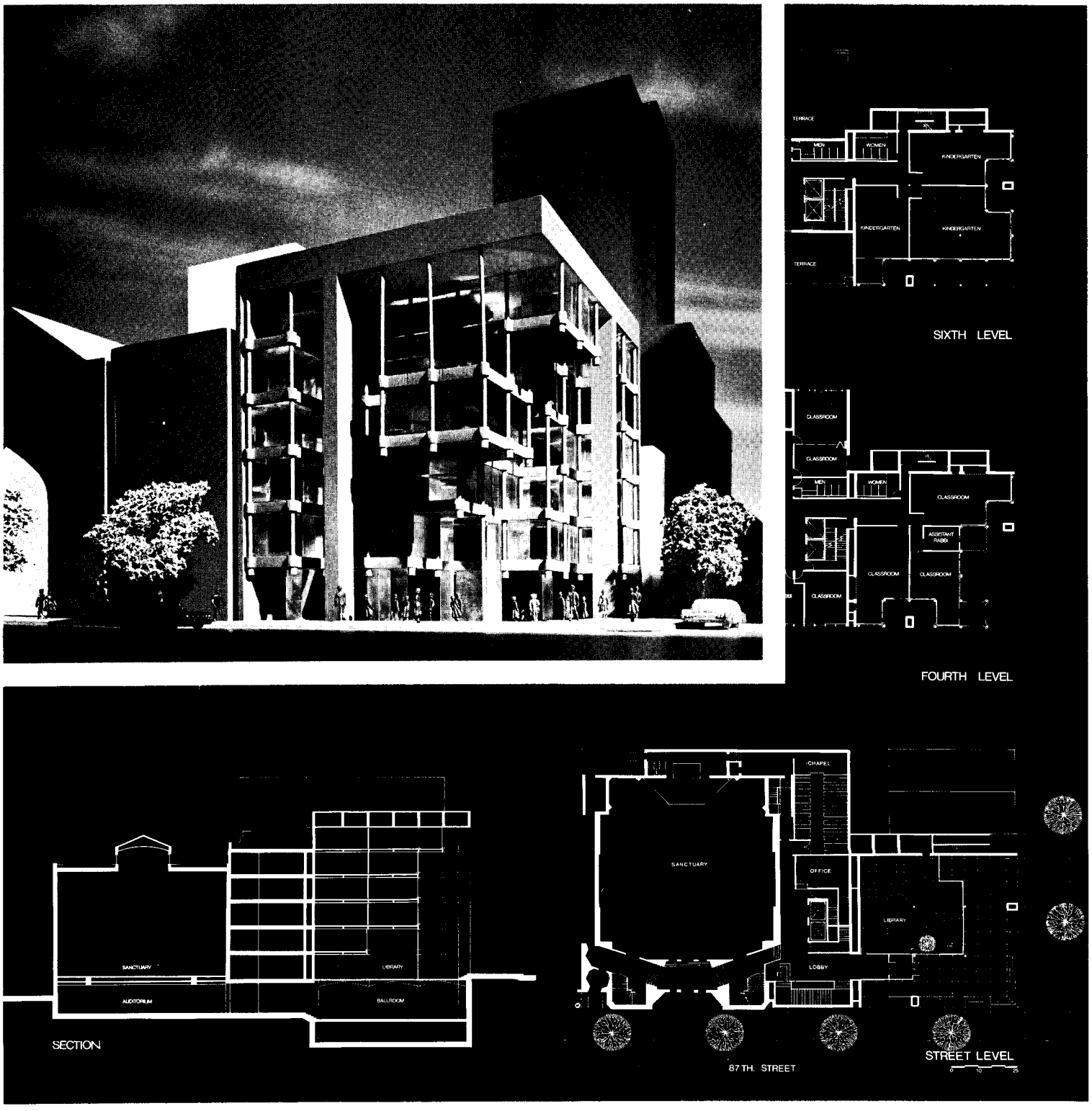
(*continued from page* 11)

ENIGMATIC STRUCTURE

The most important space Architects Conklin & Rossant had to include in their proposed addition to New York's Park Avenue Synagogue will be impossible to spot from the street. Beneath the entire 60-ft.-square site will be a column-free ballroom, which can be combined with the auditorium of the synagogue itself and the basement of its 1955 addition to form one 8,800-sq.-ft. space for High Holy Day services and other large gatherings.

The column-free room required a deeper structure over it than it was possible to fit below the established first floor level. The architects' answer was to span the space with a steel spaceframe six floors above, at the roof. Suspending the other floors from there made it possible to design a building with reverse setbacks, leaving a large public plaza at the street—a new "front door" for the whole complex—and carrying the cornice out to the building line along the two streets.

The suspension members of the new structure will be pipe columns, fireproofed and sheathed in bronze. Except for the bronze on columns and spandrels, all exposed walls will be of clear glass, with drapery behind it to provide privacy where required.



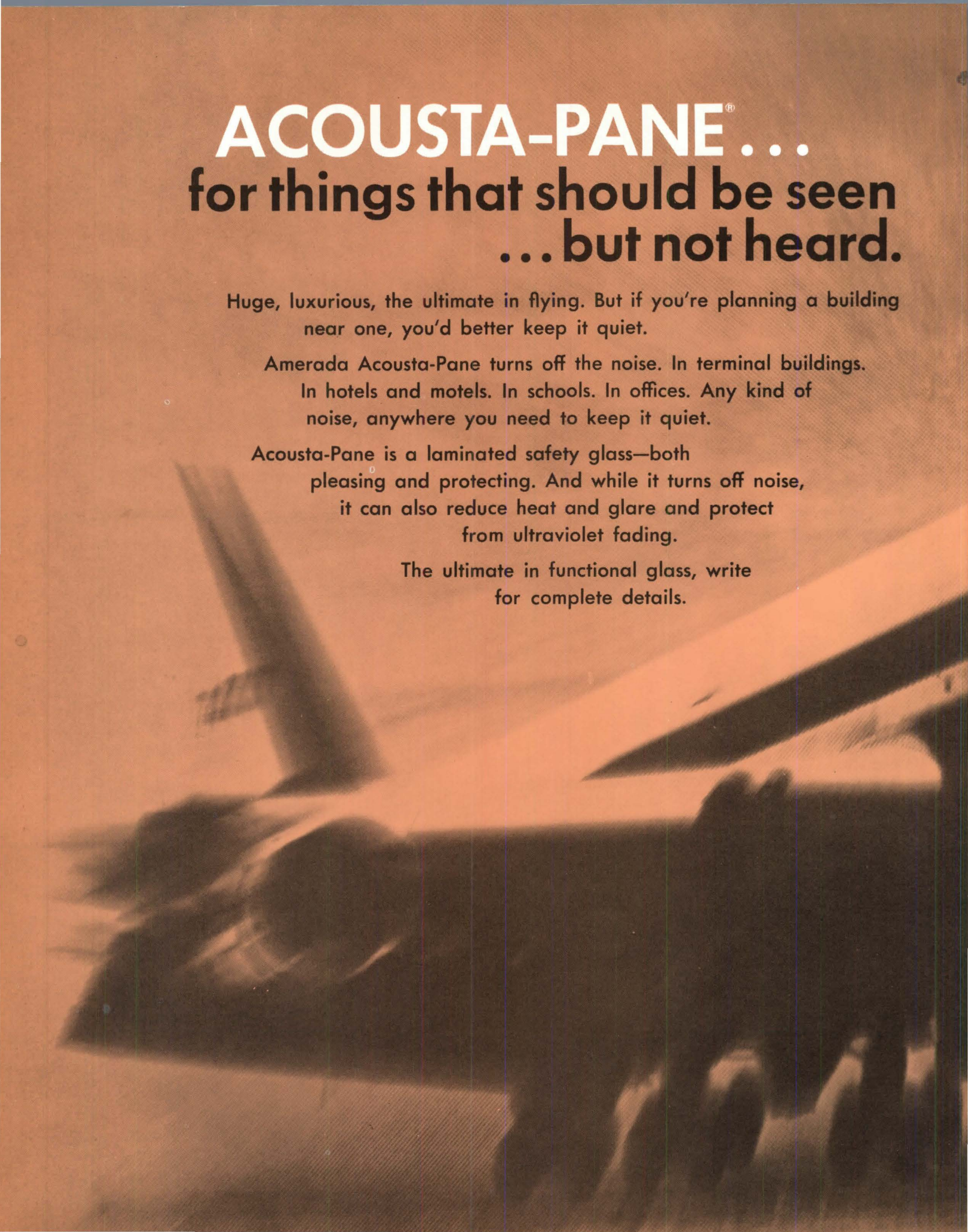
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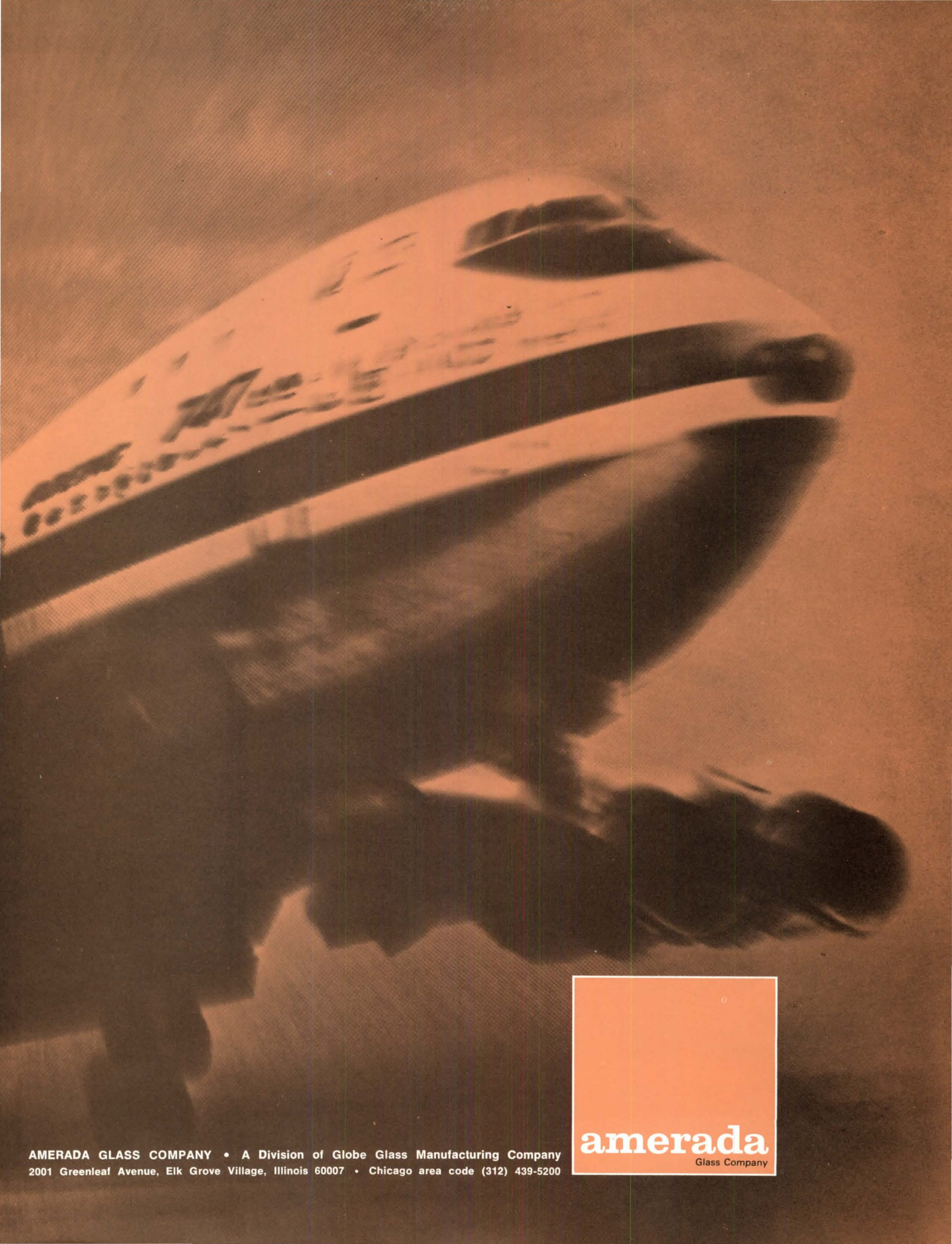
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LETTERS



A.I.A. GOES WITH A BANG

Forum: I thought you might be interested in the enclosed photograph [see above]. It is the broken pediment and doorway to the former townhouse that until recently housed the New York chapter of the A.I.A. Another bit of New York gone without a whimper.

BERNARD ROTHZEID
New York City — *Architect*

TRUST FROM MANNY HANNY

Forum: I was pleased and delighted to find the extensive coverage of our new Operations Building at 4 New York Plaza in your January/February issue. We are proud of the building, and I can tell you that it has exceeded our expectations in the efficiency and economy it contributes to the daily processing of millions of transactions.

It is most satisfying to have our efforts recognized in the foremost magazine in the architectural world.

GABRIEL HAUGE
President Manufacturers Hanover Trust Co.
New York City

UP THE BRIDGE

Forum: Hats off to James Bock, 29-year-old architect and city planner, for his understanding of the potentialities of the 94-year-old Eads Bridge [Jan./Feb. issue]. Is anyone in St. Louis—of whatever age—listening?

J. K. MACON
San Francisco — *Designer*

STUDENTS STRIKE HOME

Forum: Thanks for the article on the Paterson, N.J., restoration proposal [Jan./Feb.]. Anyone who thinks that student strikes are some kind of tantrum staged by spoiled kids should think again, in light of the revelation that the Urban Deadline began life during the "disturbance" two years ago at Columbia University. The proposal by Urban Deadline for Paterson seems unusually mature. One hopes that having received the free services of this dedicated and hard-working group of young people, the city of Paterson does not value the proposal according to the amount of money it spent on the planning.

MARION BEDFORD
Cleveland, Ohio — *Urban planner*

SENSATIONAL DETAIL

Forum: If the Flash Gordon bathroom of the Feigen Gallery [Jan./Feb.] is "perhaps the most sensational detail and greatest job in all of the gallery," then why don't we see a photograph of it? The photo of the hatch door on page 49 just doesn't do it. Is the FORUM following the delicate lead of television, which never shows us a toilet bowl even when they are trying to sell us a product to clean it?

New Rochelle, N. Y. — JOE DONIZETTI

Sorry, occupato—ED.

POST MORTEM

Forum: If the Takara Beautilion [March] is indeed a glimpse of the future, let us put our work aside for a few reverent moments, take a last sip of champagne (or, more appropriately, stale coffee dregs) and kneel in silence before the tomb of Architecture, murdered, 1970.

What a sad demise. Architecture died not in the service of mankind, or even its honor, but in traumatic contortions of structural black humor.

The irony is that Architecture's murderers were not its critics, or those it excluded or victimized—the poor in ghettos or the newly optimistic housed in Co-op City.

Architecture, instead, will have been murdered by its own servants, architects. Indeed a Frankensteinian end. And all in the name of fun.

New York City — ARNOLD NEWHOUSER

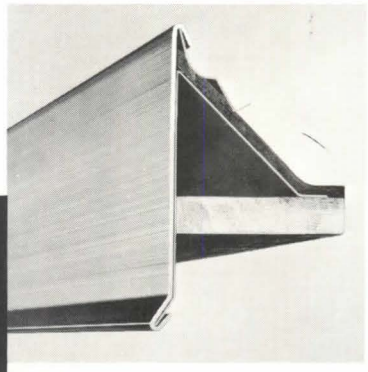
ERRATA

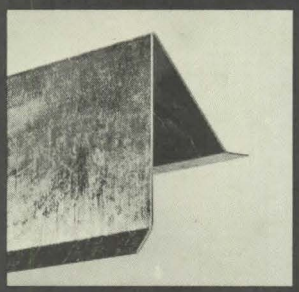
We regret that in our April Focus coverage of the Steelcase showroom, we misnamed the company as Steelcraft. Frederick Glaser's showroom (April) was executed by Architect Ron Zocher.

HICKMAN DOESN'T JUST MAKE A GRAVEL STOP.

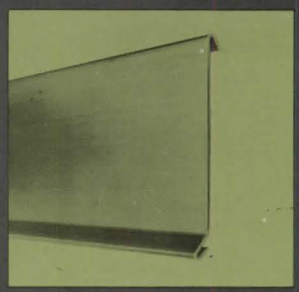
IT'S A COMPLETE SYSTEM.

The Hickman Gravel Stop System is 3-piece . . . galvanized steel water dam, extruded aluminum fascia and exclusive compression seal. Sounds complicated? It's not. It's just efficient. Here's why:

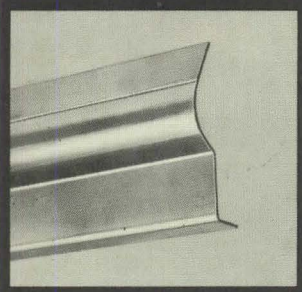




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See Hickman Gravel Stop, Roof Expansion Joint and Fascia Panel Systems in SPEC-DATA and SWEET'S Architectural File 21g/Hi.

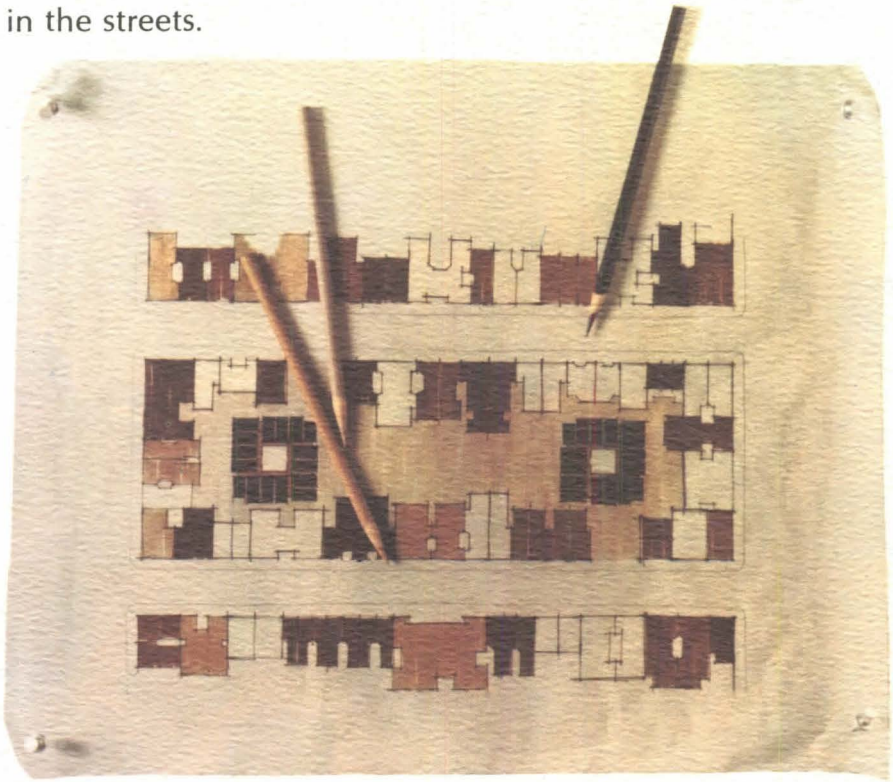
← On Readers' Service Card, Circle 207 — On Readers' Service Card, Circle 208 — On Readers' Service Card, Circle 209 →

The Relocation Problem Solved

An urban renewal concept by Frost Associates, New York City

Objective: To provide new housing and new light industrial, commercial and other community facilities in slum areas with minimum dislocation of the present residents and businesses.

Concept: Redevelop a slum, one block at a time, by building a residential high rise tower or towers in existing back yard space to accommodate families living in adjacent existing buildings. Next, replace obsolete tenements with new industrial-commercial-community buildings having a uniform height not exceeding four stories. The roofs of these low rise structures can provide recreational opportunities for people of the community. Children could play here, not in the streets.



L-O-F HI-PERFORMANCE GLASS

Procedure:

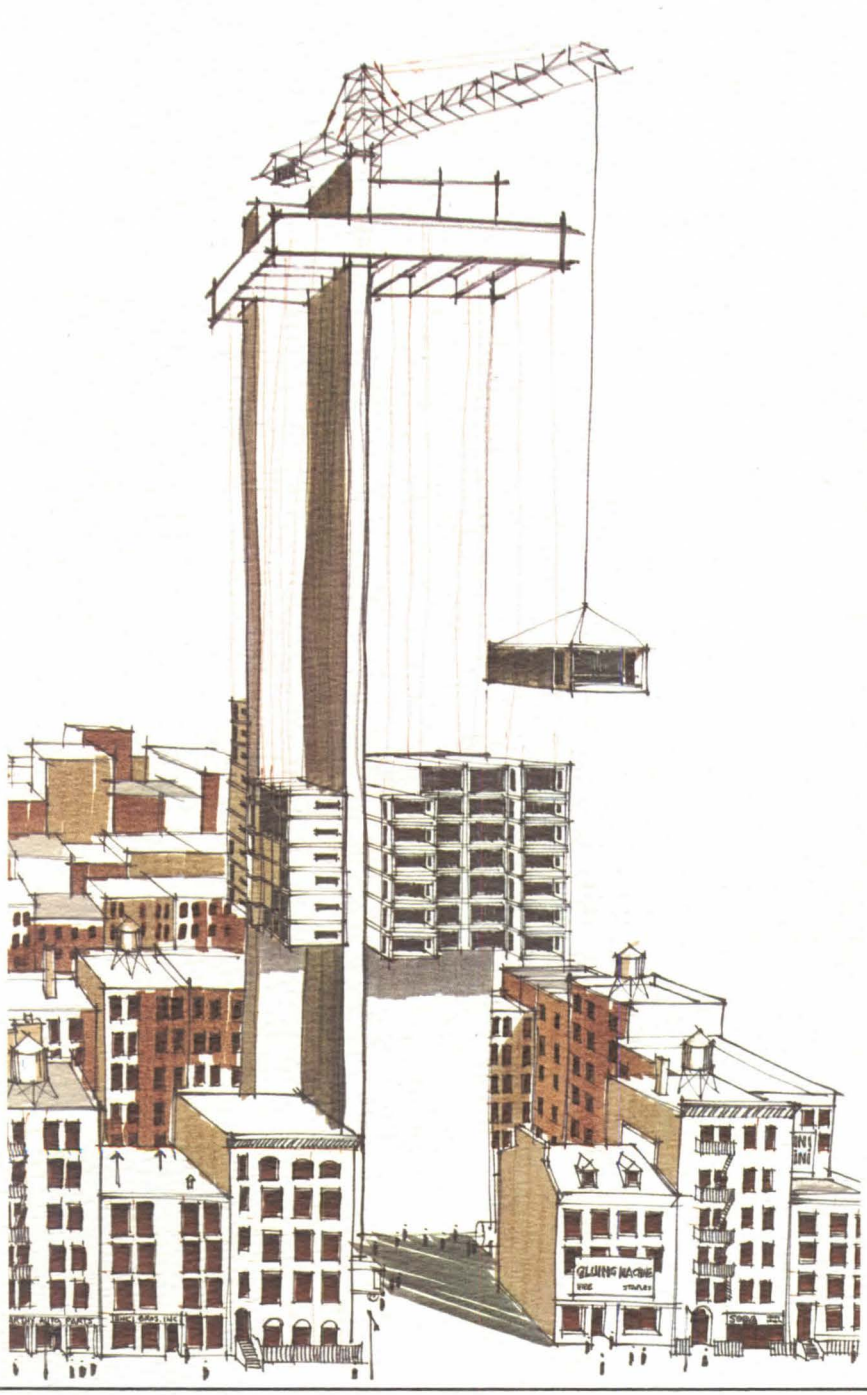
Select a project block with sufficient rear-yard space near an avenue end of the block to provide a site for a residential tower.

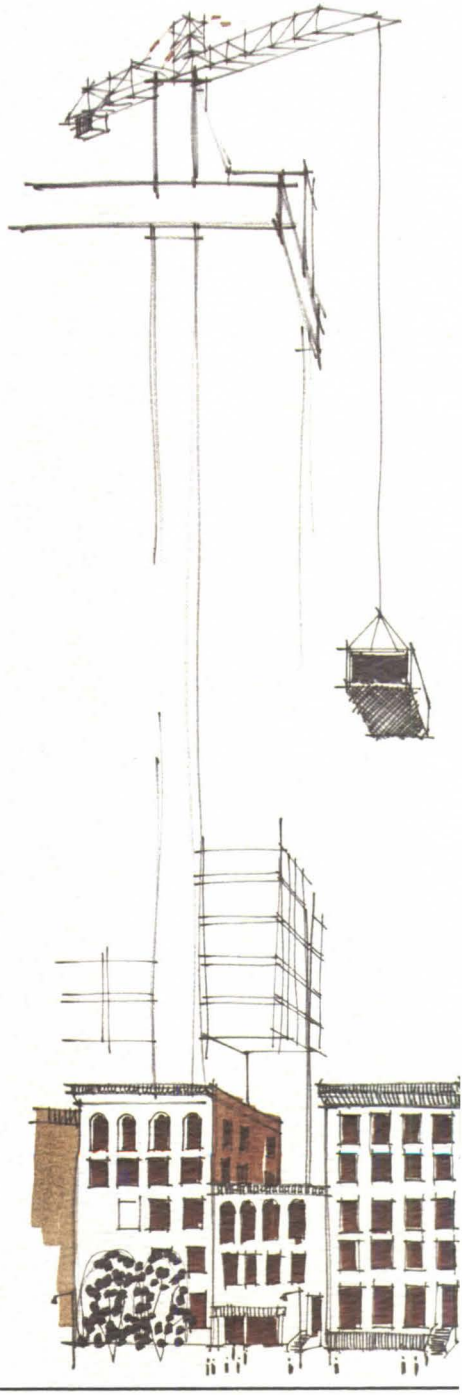
Relocate the occupants of *only* one or two buildings on street frontages if they have to be razed for access to the rear-yard site of new construction.

Pour the foundation and the slip form concrete core which will be the supporting structure and contain elevators, exit stairs and halls for the dwelling units which will surround the core (See floor plan.) Also, construct entrance-lobby space between the tower core and the street frontages.

Construct a structure to support the dwelling units to be hung below.

While core construction is proceeding, manufacture the dwelling units in an off-site location using materials and methods most suitable for complete fabrication including equipment, built-in appliances and cabinet work,



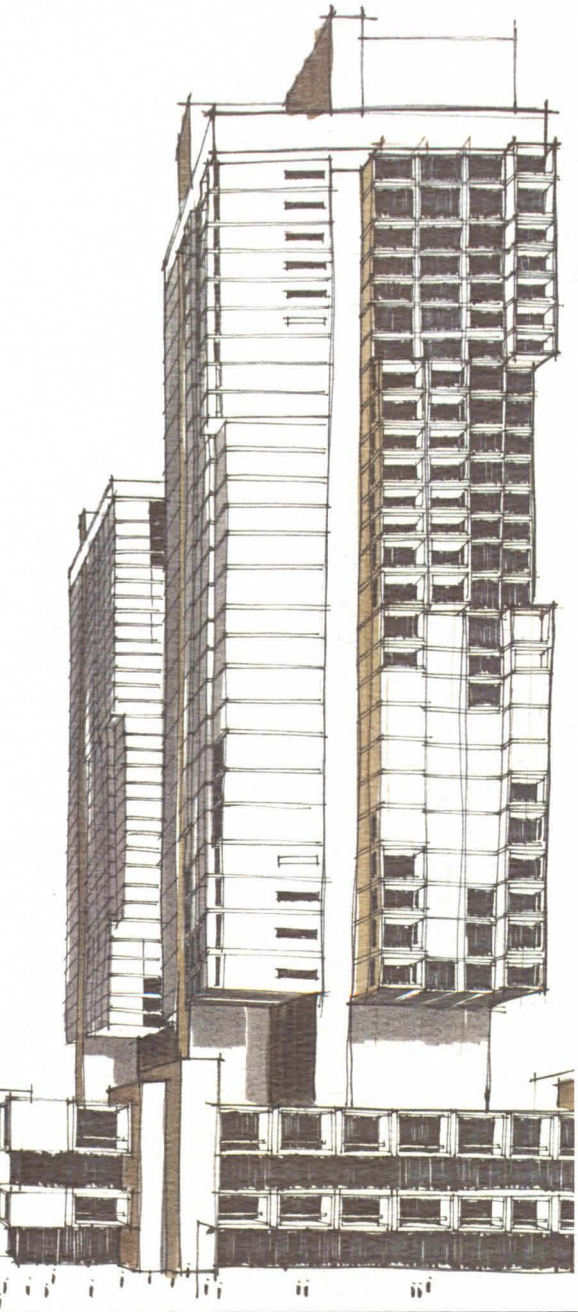


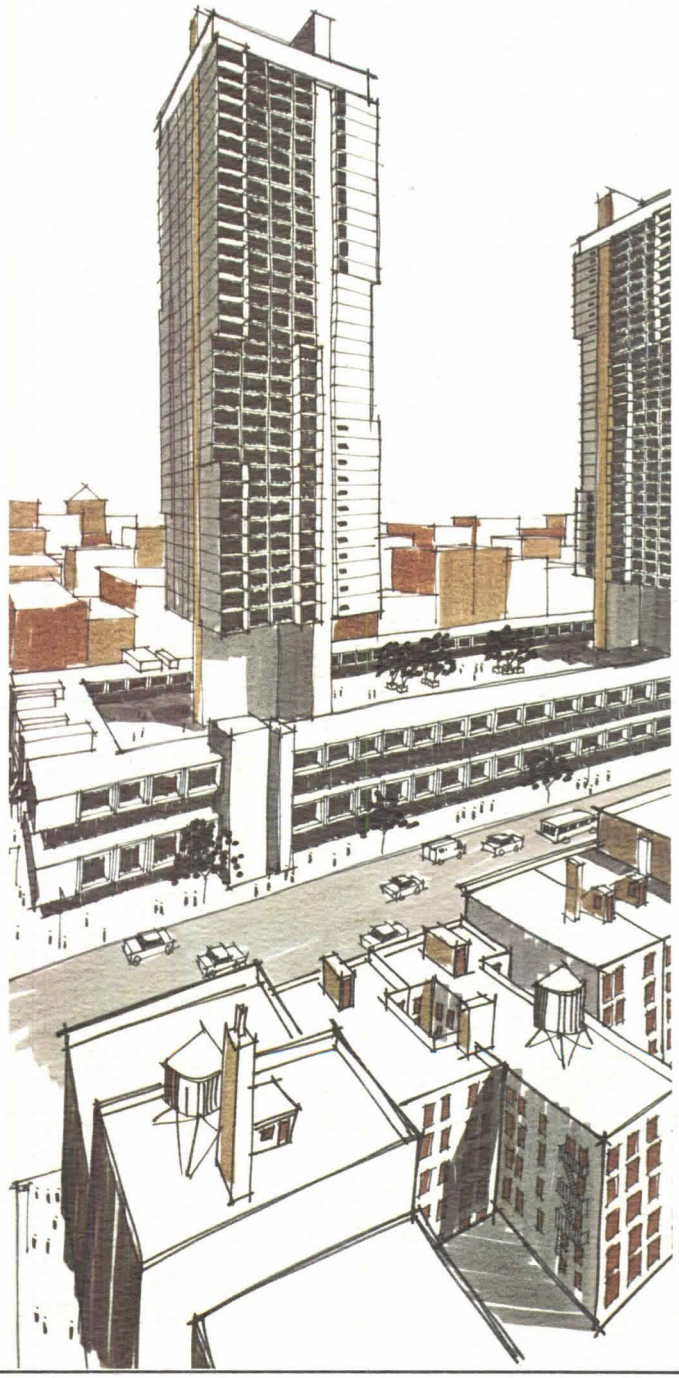
accessories, and interior and exterior finish. Deliver the completed dwelling units by truck and trailer to the building site, and put them in place around the core with a derrick on top of the core.

When the tower has been completed, move into it the families occupying existing residential buildings in the project block and relocate the businesses into vacant commercial spaces in the project block or nearby. Demolish the vacated buildings.

As about half of the area becomes available for the new industrial-commercial-community facilities, proceed with construction using materials and methods selected for maximum speed and minimum cost.

When the low structure has been completed, move in new and displaced businesses. Proceed with finishing of roof area with recreational and other open-space facilities and with landscaping.

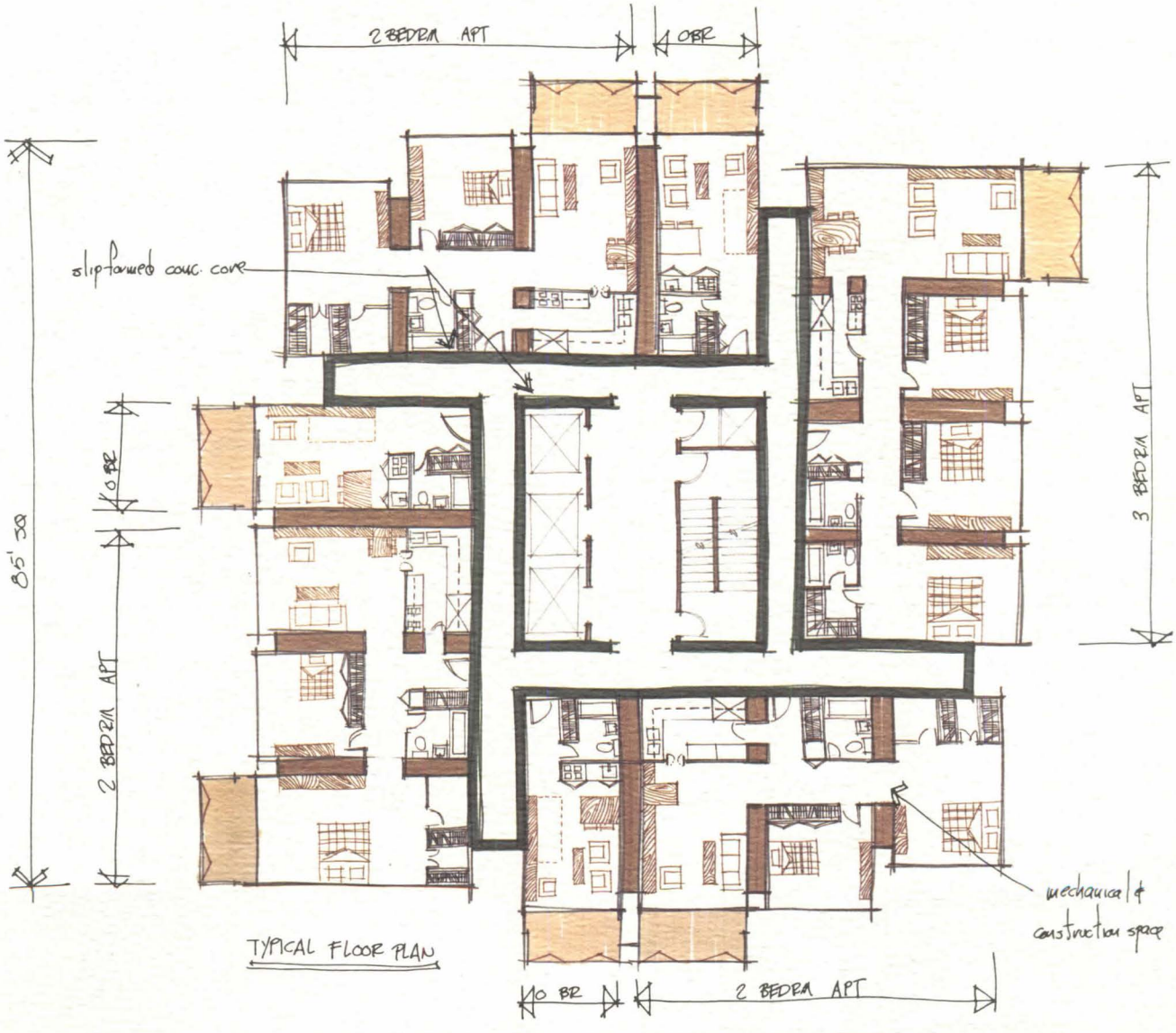




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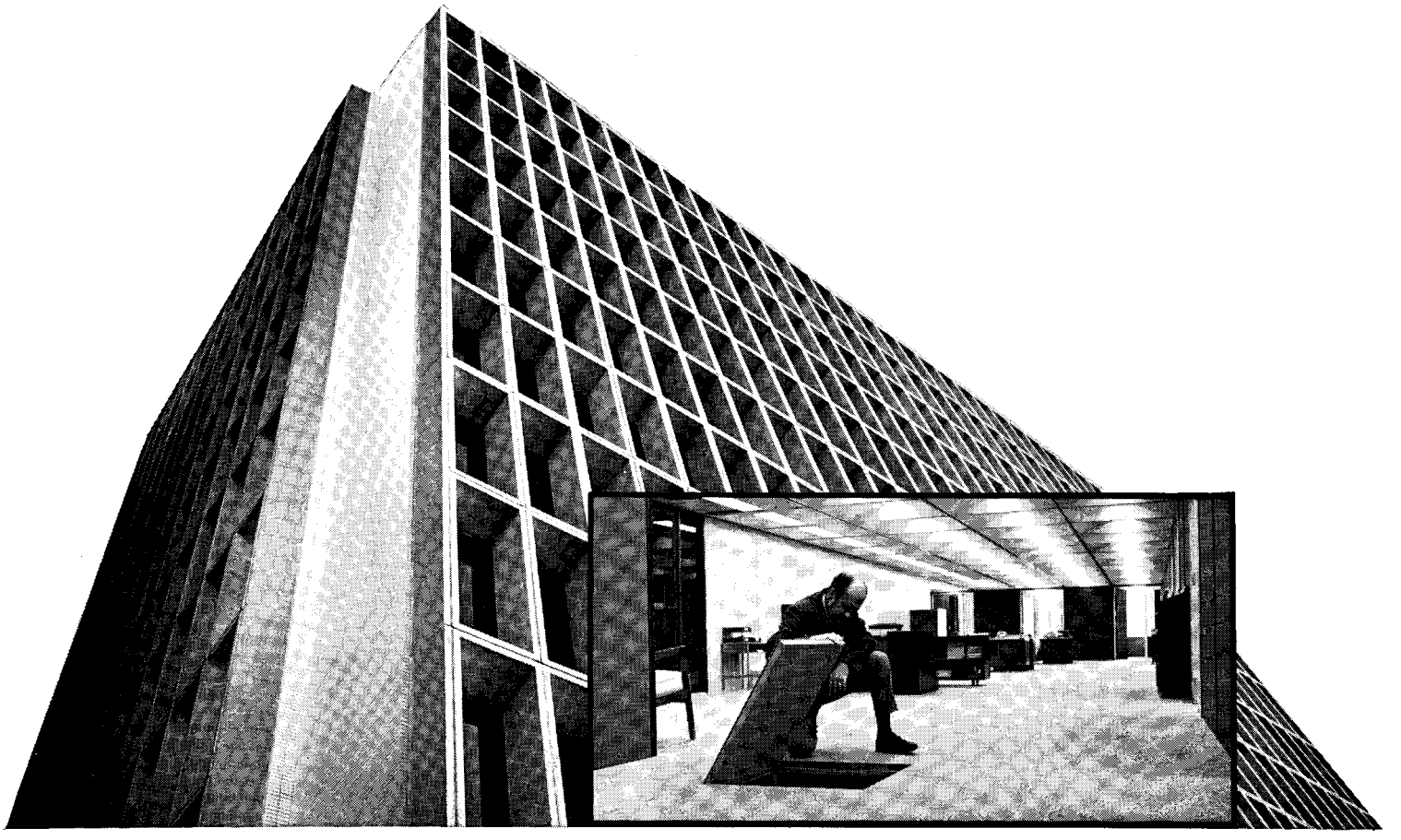
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TYPICAL FLOOR PLAN

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128,300 sq. ft. of free-access Weberfloor . . .



pays off in new 12-story Chicago office building.

Typical of the growing trend toward access flooring in general construction is the American Hospital Association's new building, designed by Chicago architect, Richard O. Evans of Schmidt, Garden & Erikson.

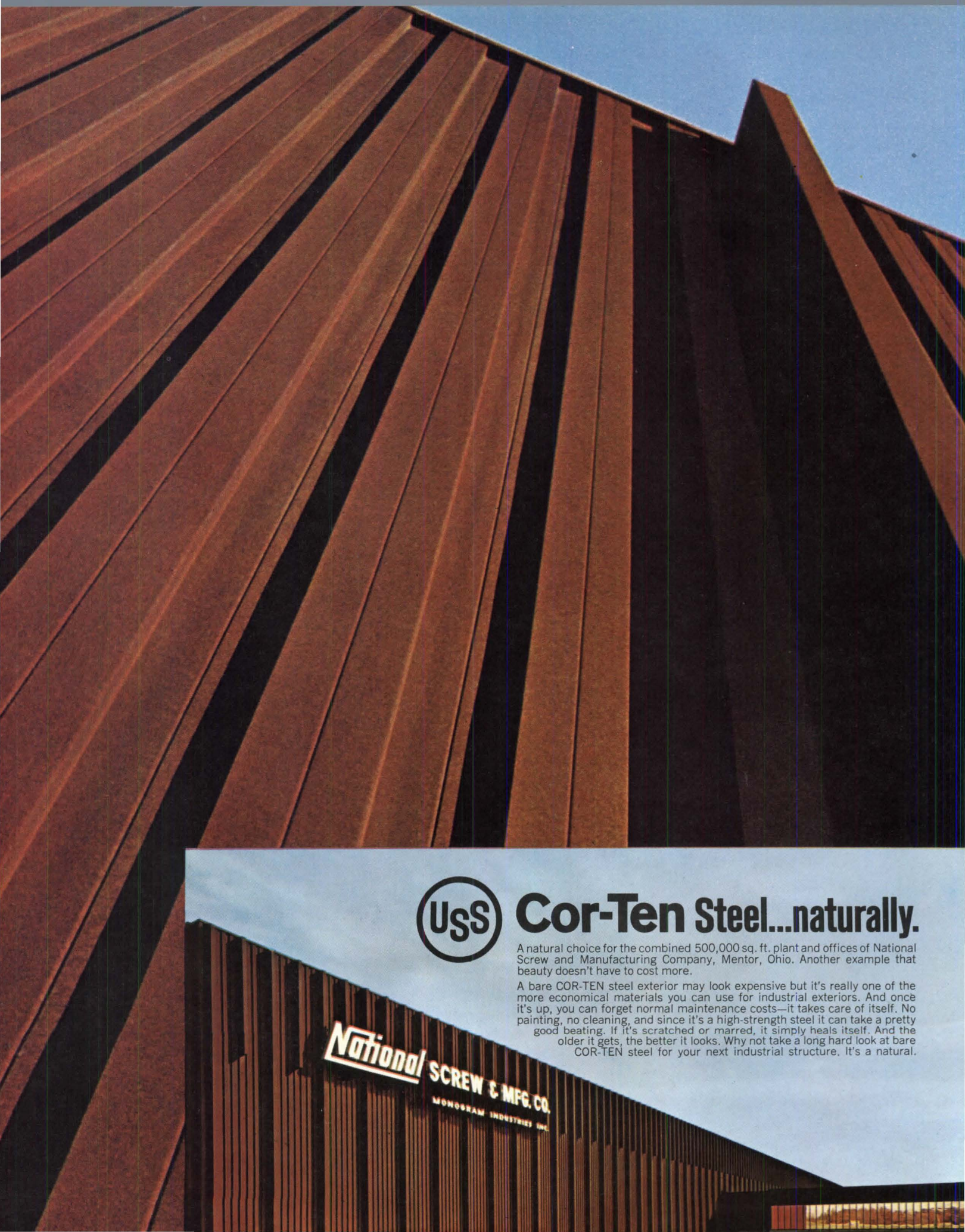
The structure's 128,300 square feet of free-access Weberfloor, 90% of it carpeted, was installed for less than $2.00 per square foot exclusive of floor covering. Most of this figure will be offset by a combination of immediate savings in construction costs and future maintenance economies.

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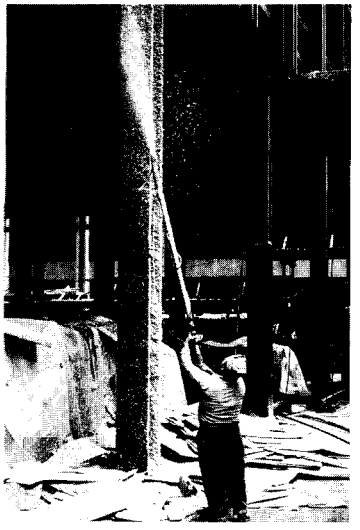
Johns-Manville

FORUM

New York City's Environmental Protection Administration put into effect on April 13 the nation's first regulations for the control of airborne asbestos. Used in the construction industry for spraying of steel supports to prevent weakening in case of fire (below), asbestos is virtually indestructible in lung tissue. Considerable evidence points to it as a cause of cancer among insulation workers.

The evidence was compiled by the division of environmental medicine at New York's Mt. Sinai Hospital, under Dr. Irving J. Selikoff's direction. His studies began in 1962 with 632 men who had been members for 20 years of the International Association of Heat and Frost Insulators and Asbestos Workers, AFL-CIO.

By 1962, there would have been 203 deaths among these men, had they equaled the U.S. male average. Instead, there were 255, an excess of 20 per cent. Six or seven deaths by lung or pleura cancer would have been normal. There were 45. Cancer of the stomach or colon would normally have caused nine or ten deaths. There were 29. And, Selikoff reports, "there should, of course, have been no deaths due to asbestosis. There were 12." (Asbestosis is a build-up of scar tissue in the lungs from the presence of asbestos fibers until the lungs can no longer absorb sufficient oxygen.) The study was later extended through March 1968, and the results were equally astounding.



The regulations are of an interim nature while the studies go on. Floors, before being sprayed, must be cleared of all objects not covered with plastic or plastic-coated tarpaulins. The entire floor, or part thereof to be insulated, must be enclosed with plastic tarpaulins; interior open areas—elevator shafts, etc. —must be enclosed. Wet asbestos must be immediately swept up and placed in covered containers for disposal at an approved site. When dry, floors must be vacuumed and the vacuum bags similarly disposed of. Tarpaulins must also be vacuumed before removal of the protective enclosures. Signs warning of the danger must be posted outside the enclosures. Workers must be provided with Bureau-of-Mines-approved respirators and coveralls, to be left at the site.

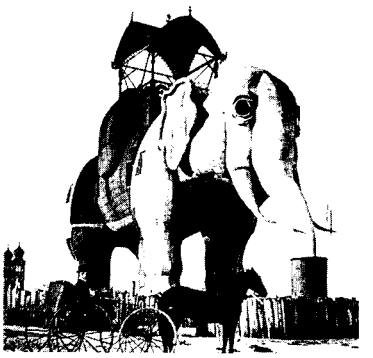
A significant recognition of the hazards of asbestos to health, the new regulations were also a point of progress for the city in its observance of Earth Day, April 22.

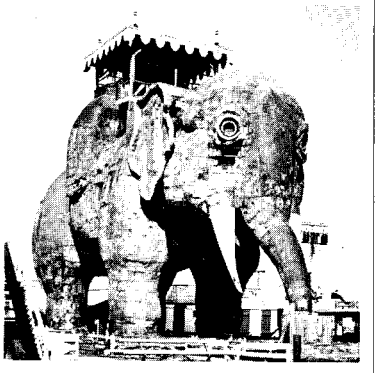
FOLLIES

FROM ELEPHANTS . . .

"Lucy," the last of the great elephant-house follies—there were three—has tin skin that has aged badly from years of neglect and from the salt spray of the New Jersey coast (above). But rejuvenation of the old girl appears to be in the offing.

The descendants of John Gertzen, who purchased Lucy in 1887 from her real-estate promoter-builder James V. Lafferty, have donated her to the city of Margate and the "Save Lucy Committee" on condition that she be moved from her block-sized oceanfront lot by the middle of July. •The Gertzens want to sell to a condominium developer. The city of Margate has, in turn, donated a lot for Lucy some two blocks away.

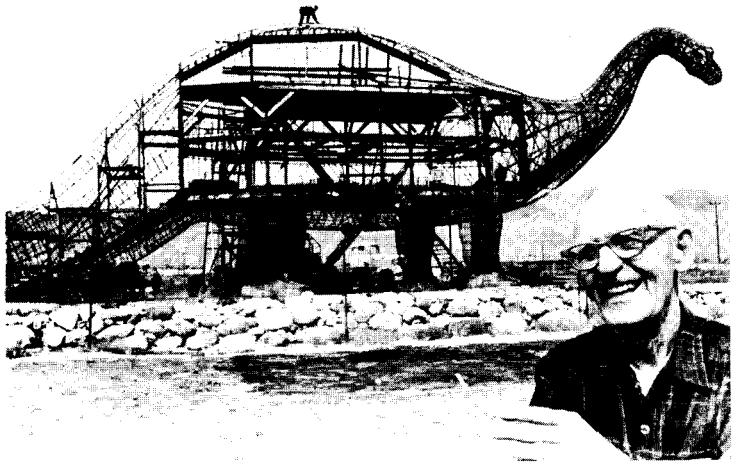




Lucy first appeared in 1881, was patented by Lafferty the following year and, it has been claimed, once dispensed drinks and rented out a couple of her 11 rooms. Mostly she has been a curiosity—and millions have been curious, even after she was finally condemned in the '60s.

John D. Milner, architect and restorationist, has been retained to convert the interior for use as a children's library and to restore the exterior to its original state. The photograph (at top) was taken prior to 1887. The building at far left—demolished about 30 years ago—was the Turkish Pavilion, moved to Margate from the Philadelphia Centennial Exposition of 1876. Around 1909, Lucy's highly ornate howdah blew off in a storm and was replaced by a boxy affair that marked the beginning of her decline.

The wood-frame structure with steel reinforcing rods and sheet-metal skin is "very sound," according to Jack E. Boucher, who has compiled a 16-page illustrated pamphlet on Lucy's past (see also Aug./Sept. '64 issue, page 98). •The pamphlet will be sent to donors of $5 or more toward the estimated restoration cost of $115,000, which includes Lucy's conversion to a library (address: Elephant, Margate, N.J. 08402).



. . . TO DINOSAURS

Lucy, the habitable pachyderm (see page 27), was so impressive to Claude Kenneth Bell, who lived as a boy in Atlantic City, that now, a sculptor and 73 years old, he is building a Brontosaurus-house between L.A. and Palm Springs (above).

Brontosaurus-house does not reach new heights. Lucy, at 65 ft., is still 20 ft. higher. But it does go to new lengths; the neck alone is 54 ft. long. Bell, however, plans to build a Tyranosaurus Rex–house next—"with those terrifying dagger-like teeth"—that will stand upright, 90 ft. in height.

Meanwhile, Brontosaurus — which will house restaurants and shops—will have eyes that glow at night and a mouth that spits fire. "It'll scare the dickens out of a lot of people driving up over the pass," says Bell.

TECHNOLOGY

ORIGAMI PLUS GLUE

A bridge made entirely of paper and glue supporting a 12,000-lb. truck!? Viewers watching the Apollo 13 launch last month saw a one-minute ad showing this engineering "first," which was commissioned by the Ogilvy & Mather advertising agency of New York for their client, the International Paper Co. The commission went to Environspace Research and Technology Corp., a subsidiary of consulting engineers Lev Zetlin Associates of New York, who designed the special structural system.

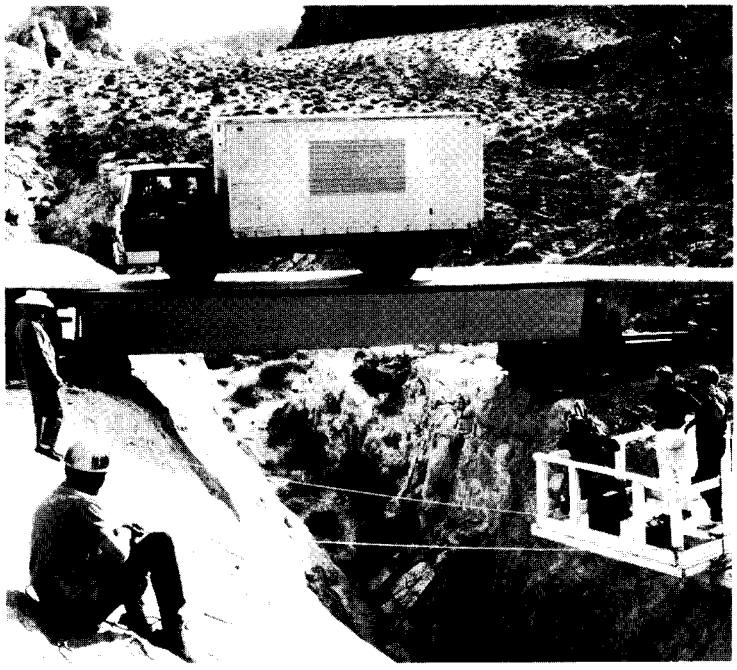
Wiss, Janney, Elsner & Associates of Northbrook, Ill., an associated firm of Environspace, then constructed and load-tested the bridge. In the tests, the 12,000-lb. weight deflected the structure only 1/2 in. within the 30-ft. span. And Environspace determined that the bridge could carry *six times* that weight, or span two and a half times farther and support the truck.

From Illinois, the bridge was shipped to Valley of Fire National Park near Las Vegas, where, on a foundation of 12-in. by 12-in. railroad ties, it spanned a gorge called Cayote Pass. The Truck was first lowered gingerly onto the structure by crane, then driven forward and back as cameras whirred (below).

The bridge system consists of a superstructure and decking. The stressed-skin superstructure is 30 ft. long, 10 ft. wide and 4 ft. deep and made of folded cardboard-carton-paper components of three major types: longitudinal webs; transverse webs; and pyramid shapes, which are inserted from top and bottom, forming a kind of glorified egg crate. The interweaving of the pyramids provides a continuous joining of flat surfaces for bonding with glue.

The decking—a row of laminated cylindrical paper tubes sandwiched between layers of laminated paper—is then glued to the superstructure.

Environspace suggests that the system might be employed for building roofs for pavilions, traveling exhibits, and fair enclosures; or for portable landing pads for helicopters. And, with proper waterproofing and fireproofing, permanent roofs—for branch banks, roadside stores, and the like—might be feasible.



CONFABS

PLANNERS AND SURVIVAL

The American Society of Planning Officials gave 3,000 of its members a few things to think about at the 36th annual conference last month in New York City. Major speakers hit some hard themes—Congresswoman Shirley Chisholm opened the four-day conference by pleading that black and brown Americans are not interested in planning for progress but in planning for survival. Also sounding the call for citizen participation were Mayor John Lindsay and Samuel C. Jackson, HUD's Assistant Secretary for Metropolitan Development.

Edward Logue of the New York State Urban Development Corporation cautioned planners against smugness, pointing out that most planning in the U.S. is simply not effective. Paul Ylvisaker, lately of the New Jersey Department of Community Affairs and now unemployed urged planners not to become "medicine men" and dispense cures they know will not work.

Then there were the usual stock-in-trade sessions—on analytical techniques, land-use policies, policies for housing opportunity, and devices for environmental protection.

And officially, the ASPO conference gave its Medal (posthumously) to Charles Abrams (April issue, pages 62-63); welcomed a third black man to its elected Board of Directors—Clarence Funnyé (pages 62-65); and proposed a series of actions whereby ASPO can be of better service to minorities, the poor, and to its own membership.

Compared to its past performances, the 500-member Planners for Equal Opportunity was relatively quiet. PEO had several evening sessions (one blasting Nixon, another proposing a serious New Towns program); held a continuous rap-session in its fifth-floor suite; and ran a tour to one of the metropolitan area's lesser known disaster areas (East New York, in Brooklyn).

A major action by PEO, however, was to call attention to Harvard's firing of Chester Hartman, assistant professor of city planning and founder-director of the pioneering Urban Field Service. PEO called for an explanation of this action by the new dean of the Graduate School of Design, and ASPO agreed to ask its board to investigate it.

Elsewhere in evidence at the conference was a women's group, more visible through its leaflets, however, than in the flesh (so to speak): "we scorn this ill-conceived conference . . . we condemn the misuse of women in planning and other occupations . . . we deplore the planning that is done—by men." A students' group was also heard from, calling for community representatives to be admitted free, among other things. And a Planners for Survival coalesced towards the end of the conference, announcing its concern for "the total environment, natural and man-made," and calling upon planners to engage in "life-serving activities (rather than profit-serving activities) within the earth's capacity to support life."

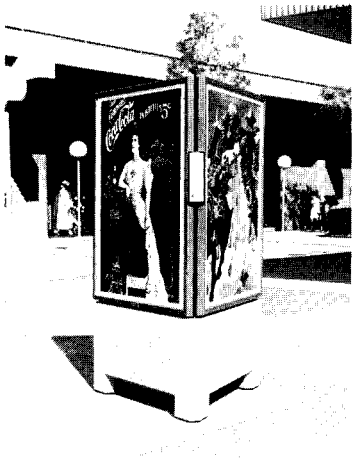
A heady brew—all this—for planners and planning officials who could usually rely on their annual conference simply as a place to try to get a better job.

GRAPHICS

PEOPLE'S GALLERY

Another new concept in outdoor advertising (see March issue, page 21) is being prepared for distribution by the graphics division of Metromedia. Triosks, or three-sided kiosks, will have tripartite displays of posters, and will brighten up shopping centers, city malls and other sites in need of an artistic uplift. Of the three posters on each triosk, one will be devoted to a noncommercial subject—hence the name People's Gallery. The other two posters will be designed in an historical vein (note Coca Cola ad below).

The structures are of plastic and aluminum and support



posters of a standard 60-in. by 46-in. format; they are portable, but can be stabilized by ballast. Designers were Usher-Follis Inc. of Los Angeles who expect their sleek triosk to be available sometime this summer.

G. J. IS COMING!

Georg Jensen, long a Fifth Avenue importer of Danish *objets,* is moving to Madison Ave. And Madison Ave., long an exporter of "the sell"—hard and soft—is previewing Jensen's arrival with the most elegant construction barricade in New York. Designed by Deidi von Schaewen of Lubalin, Smith & Carnese—graphics designers for the shop's interiors—the barricade is draped with white vinyl over extruded plywood lettering (top).



The letters, cut and precovered in Shrewsbury, Mass., and trucked to New York in sections, appear on all three faces of the barricade. Letters of the same size will appear in one line on the facade of the shop when it opens for business in July. Architect for the remodeling is James Stewart Polshek.

"I got the idea from those huge white sheets flopping in the air that you often see at a construction site," said Miss von Schaewen. "And Georg Jensen is what's happening back there."

CITIES

GROUP THERAPY GOES NORTH

Twelve urban thinkers and problem solvers recently zeroed in on Nova Scotia for a six-day group therapy blitz aimed at a city. Their target was Halifax, a town of 120,000, "the oldest Anglo-Saxon settlement in Canada" (1749) and noticeably showing its age. Touted as the first urban confrontation of its type in North America, "Encounter" was primarily aimed at getting Haligonians finally to question out loud what was keeping their town provincial and what would make it prosper.

The out-of-town panelists talked with 34 diverse local groups, hearing how they rated their town. The visitors also chaired open-to-everyone "town meetings" televised nationally.

The six-day paper chase pointed to a rather schizophrenic place. Nature has been good to the city. It has one of the deepest natural harbors in the world, extravagantly beautiful countryside, great oceanographic resources, and oil riches just being developed offshore.

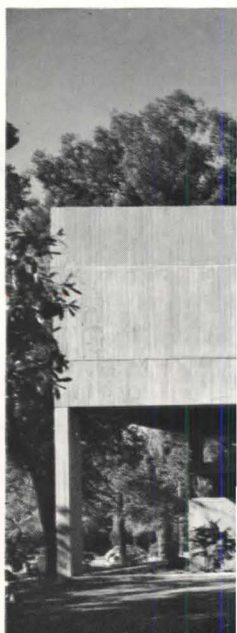
Halifax also has the beginnings of U.S. city diseases . . . chronic unemployment, a housing crisis, pollution, some racism (20 per cent of Canada's black, Indian and Eskimo population live in the area) and salaries as low as $50 a week. (Welfare pays $48). The Military is the biggest business in town; overall is an archaic structure wherein half the schools are Protestant and half are Catholic, with social and political schisms to match. (Until recently, even mayors and police chiefs were rotated by religion.) Because of geographical restrictions (water on three sides) and lack of capital, get-rich-quick ideas regularly sabotage long term planning, i.e., new containerization shipping facilities are going up in an unwise spot because the Harbor Authority already owned the land . . . and industrial parks, eagerly sought, pollute residential areas no matter which way the wind blows. It is a city with interesting priorities—more likely to let its new computer center, the only one east of Montreal, fail for lack of funds, but inclined to subsidize its inefficient fisheries forever.

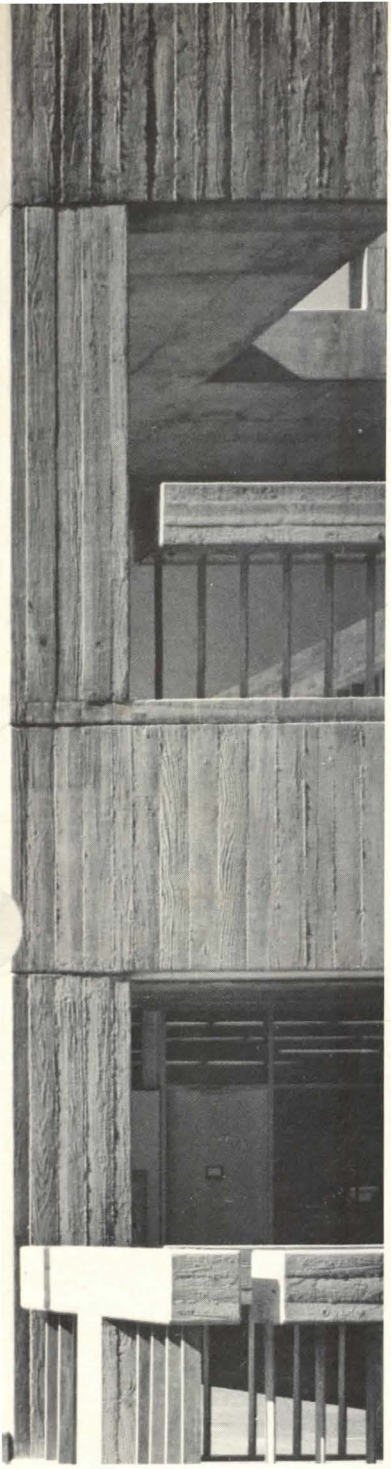
What sorts of thoughts did the visiting pros leave behind? They suggested Haligonians take a hard look at the human and economic waste of their dual school, social and political systems and at their oldtime industries, like mining and farming, which the provincial purse props up. They felt businesses which might thrive would be those linked to the splendid

(continued on page 76)







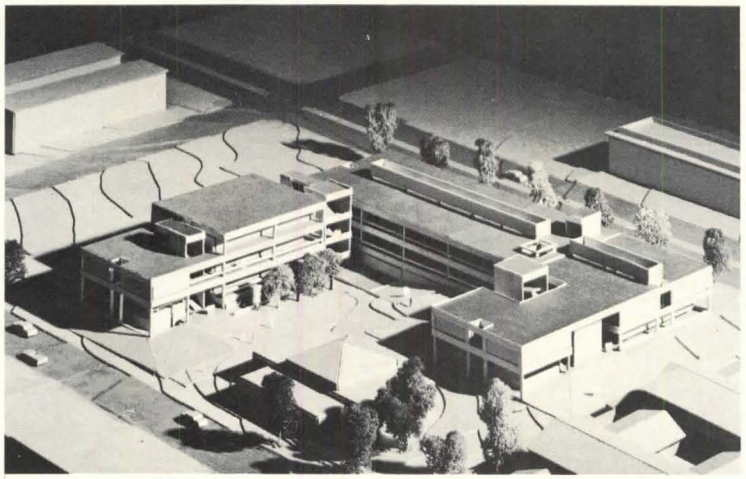




SCIENCE LABS IN A GARDEN

The four colleges at Claremont, Calif., are dispersed through a quiet area of the town. Their two- and three-story buildings, most of them with stucco walls and red tile roofs, are overshadowed by eucalyptus trees. Circulation between the four associated schools passes casually along residential streets and through the numerous arcades and courtyards of the campus buildings.

When Caudill, Rowlett & Scott took on the design of a joint science building for the colleges, they decided to retain certain features of existing buildings that are particularly suited to the community and the climate—the low, horizontal building masses, the gardened courtyards, and the arcaded walks. So logical are open, covered walks in Claremont's sunny, temperate climate that the architects decided on open corridors for the upper floors as well. At some points, these galleries widen to form informal seminar and teaching spaces. Only areas that require tight-knit internal circulation—such as the graduate research labs—have indoor corridors.



The science building forms an L around a garden terrace (far left) halfway down the one-story drop in grade between the east end of the site and the west. A future wing (model photo above) and an existing building will form the other two sides of the garden court. The south entrance to the building from the garden (near left) is convenient for off-campus people participating in programs of the ground-floor social psychology department.

The site of the science building lies across a well-traveled pedestrian route between residences and academic buildings, and the architects have let this traffic filter through the building at many points. A network of paved paths leads through the terraced planting beds at the center of the site.

Stair towers where traffic penetrates the building help to break down its volume into blocks comparable in scale to other campus buildings. For students and faculty who only pass through the building, glass walls at the ends of laboratory blocks offer views of research activities inside.

The science building was designed to be built in two stages—the first stage, now completed, forming an L and the second completing a U shape (model photo) around the central garden. To allow for rearrangement, the labs have been divided into self-sufficient modular areas—each occupying a single structural bay—which can be regrouped as needs change. All utility distribution runs along the lab ceilings, between the exposed beams and girders, so that alterations in one lab need not disturb other spaces (as they would, for instance, with underfloor installations accessible through the ceiling below).

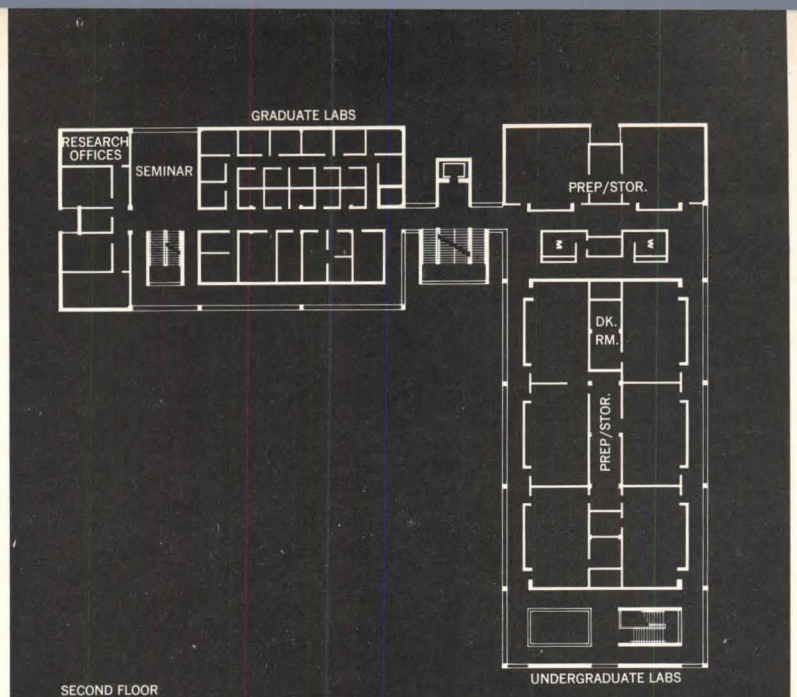
The underside of the double-T floor structure is exposed both inside and outside. Clear glass strips above the 8-ft. height of doors and storage units make the continuity of this structural system apparent from all points.

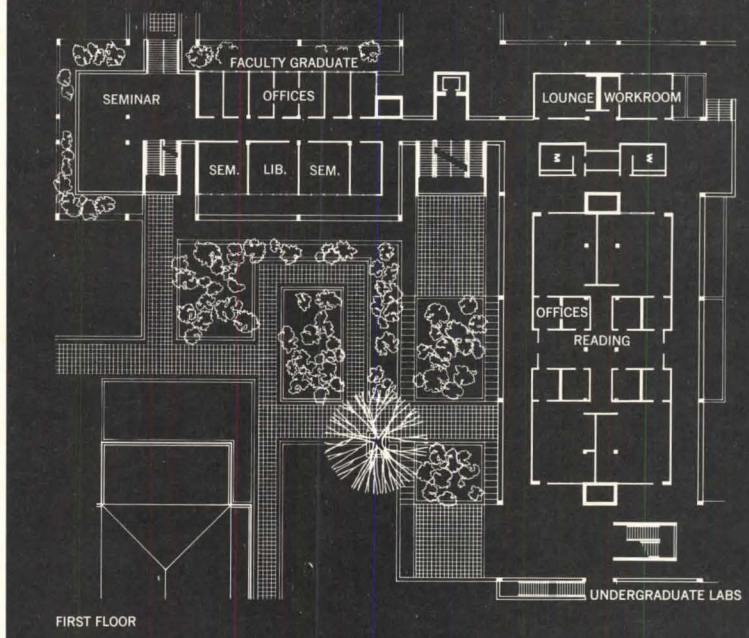
On the outside of the science building, there is little repetition of materials from older campus buildings—only the reddish tile paving and some areas of stucco on the inner side of the open corridors. But the broad areas of untreated, board-formed concrete—warm gray in color—are similar in texture to the prevailing stucco. Although the building is deliberately *not* picturesque, it forms an effective backdrop for the informal greenery of the campus.

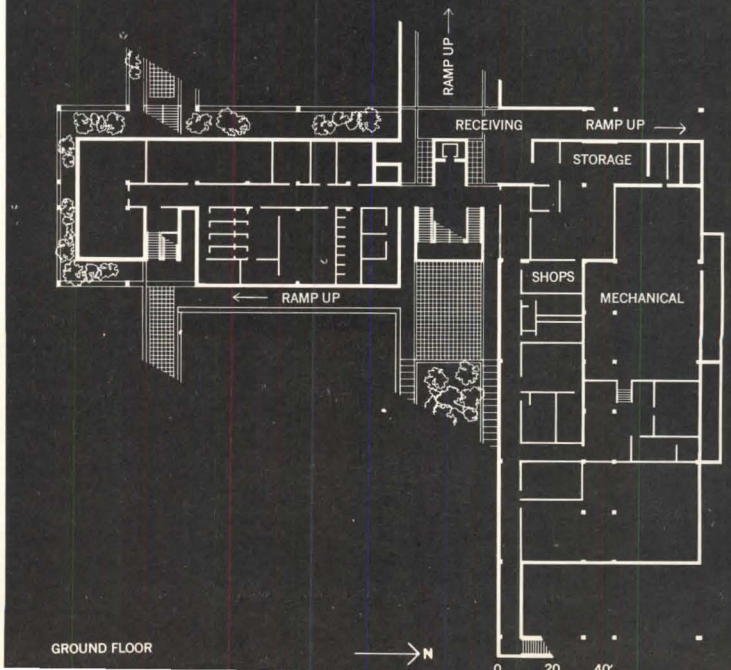
FACTS AND FIGURES

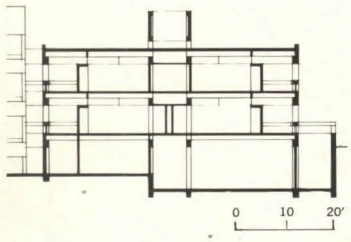
Four-College Science Building, Claremont College, Claremont, Calif. Architects: Caudill, Rowlett & Scott. Associated architect: Everett L. Tozier. Landscape architect: James A. Cooper. Engineers: Kariotis & Kesler (structural), Kocher-Bradford-Nishimura (mechanical). General contractor: Kemp Brothers. Building area: 64,750 sq. ft. Cost (construction only): $1,800,000.

PHOTOGRAPHS: Julius Shulman.





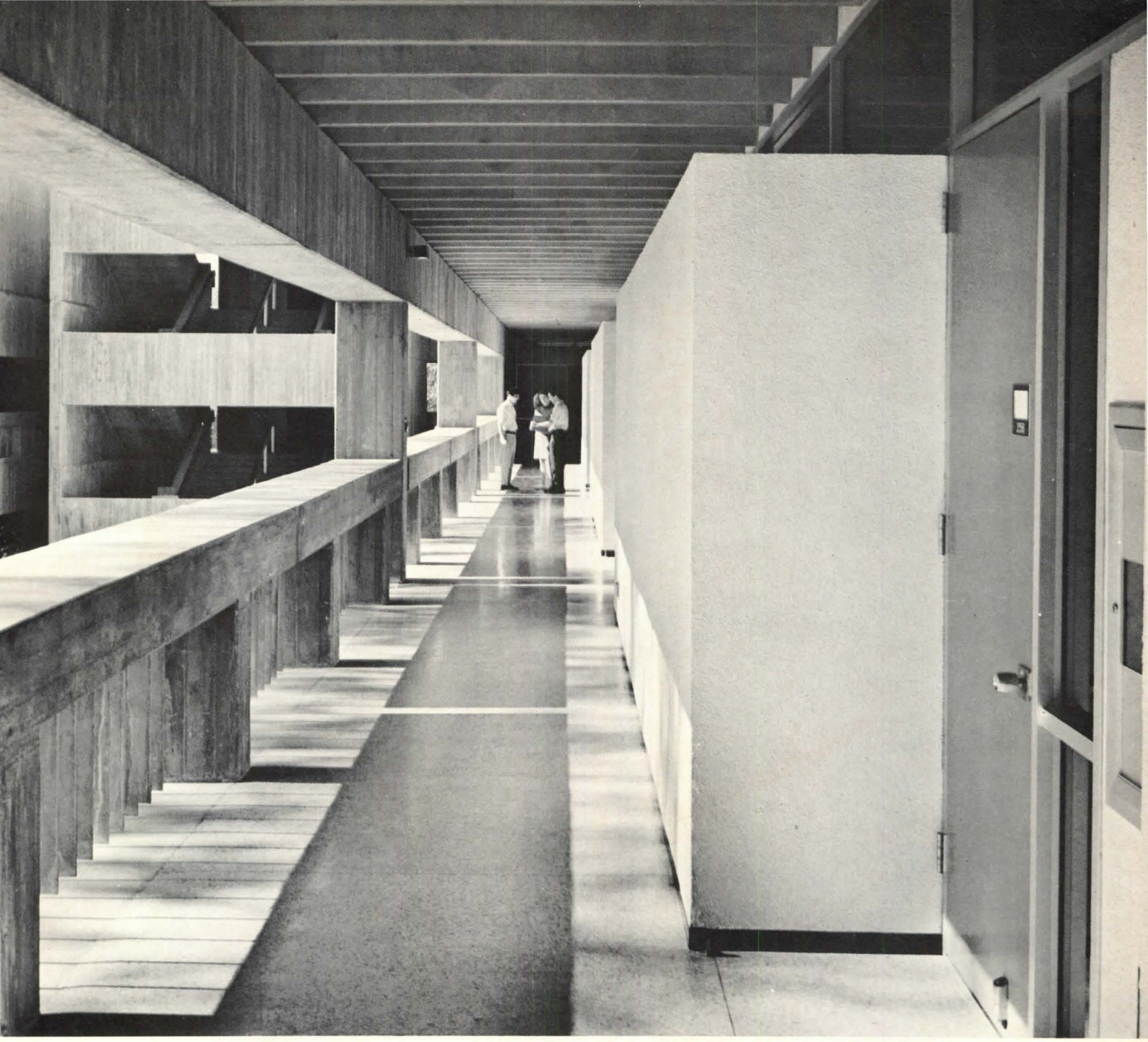




Open corridors ring the undergraduate laboratory wing (section above). Broad cast-in-place concrete railings (top right photo) help to shade the corridor floor. The gray painted steel balustrade stops just short of the floor, so that leaves and other debris can be hosed away easily. The brown-gray terrazzo floors and the ceilings of exposed double-T beams run without a break through the aluminum-framed laboratory walls (near right). Wide portions of the open corridors (far right) can be used as outdoor seminar rooms.

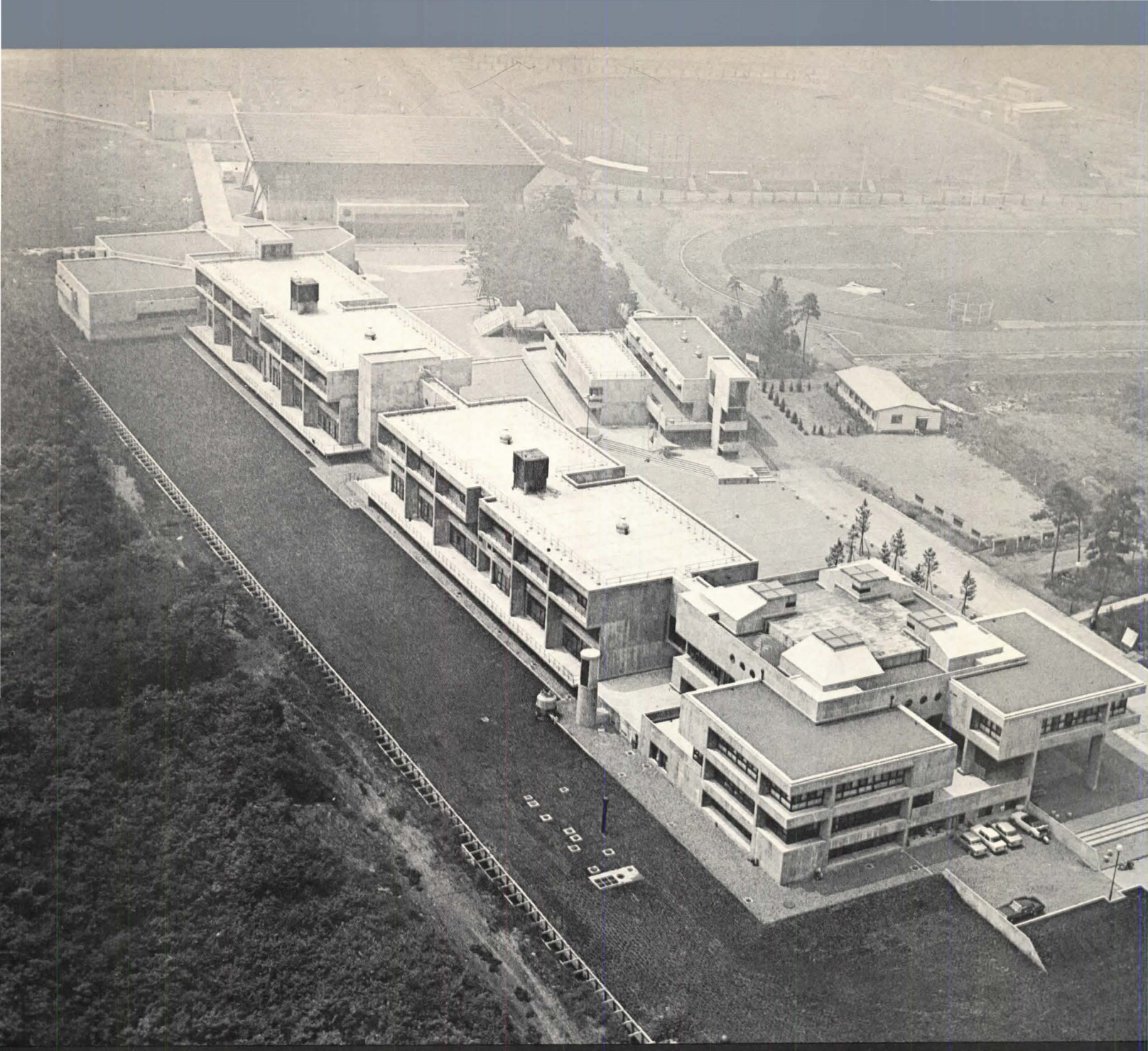


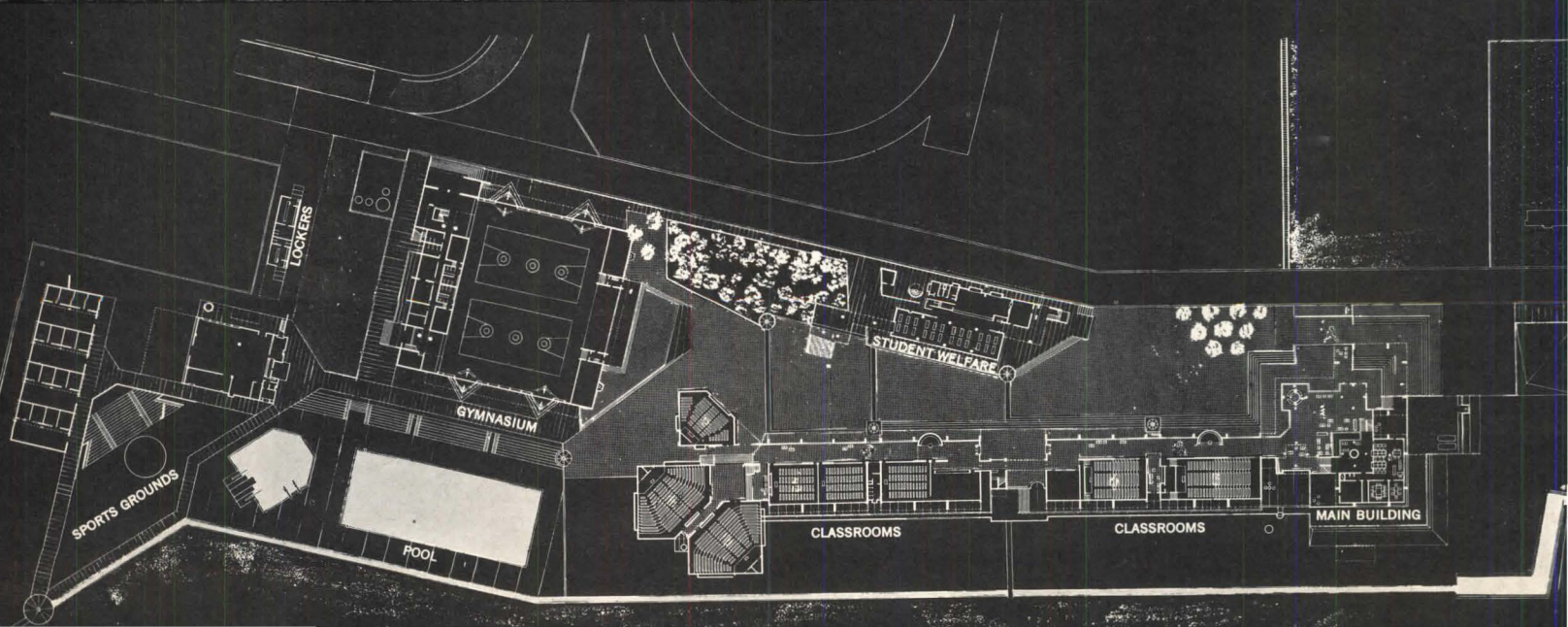




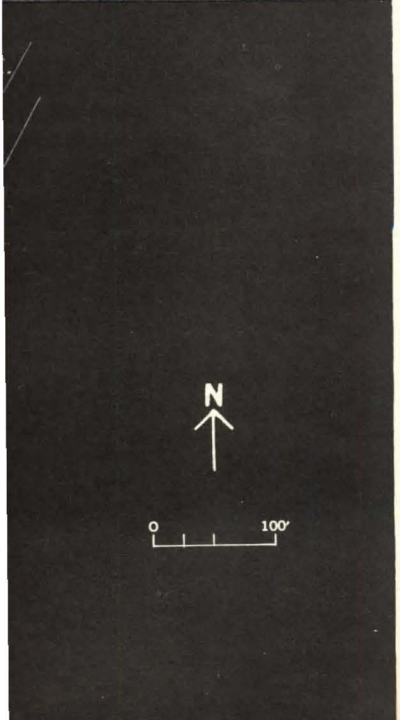







LOCKERS
STUDENT WELFARE
GYMNASIUM
SPORTS GROUNDS
POOL
CLASSROOMS
CLASSROOMS
MAIN BUILDING





CAMPUS OF MANY SPACES

Rissho University, a private institution in Tokyo, decided several years ago to build a new, second campus some 40 miles outside the capital to accommodate students in their junior years. The architect selected to plan a four-phase development of this new campus was Fumihiko Maki, who is well known in the U.S. both for his building and his teaching. Maki and his associates took five months to develop a master plan, and then proceeded with the design of the specific buildings that make up the first and second phases. The drawings and photographs on these pages show these phases complete.

"Since both the available time and the budget were extremely limited," Maki says, "we developed a master-design strategy at two levels: one governs the overall design, the other concerns itself with details."

At the so-called "macro scale," Maki's strategy was to develop a formal, functional framework; to lay down certain limitations



regarding the use of materials to assure a unified character for the entire campus; and to determine that existing trees on the 80-acre site must be preserved.

At the so-called "micro scale," Maki's strategy was to limit himself to a consistent but narrow range of construction details, lighting fixtures, skylights, etc.; to expose all mechanical systems within the buildings; to use color for accent and identification; and to carry a coordinated modular system through the entire campus.

Macro strategy

Fundamentally, what Maki and his associates did to establish a formal, functional framework is to divide the campus into two kinds of spaces—fixed spaces (e.g. classrooms) and public spaces (e.g. corridors, walkways, and open plazas).

The fixed spaces are more or less conventional classrooms, lecture halls, gymnasia, and so on. But the public spaces are quite unconventional — "not merely physical links," Maki says, "but independent spaces accommodating non-scheduled functions. These areas," he explains, "are extensions of the plaza as well, and they form a chain between the fixed-function spaces and the plaza." The aerial photo and plan (opposite) help explain Maki's concept.

Maki thinks of his public spaces as being quite varied in nature. He talks about "stations," which he defines as links between areas—vertical as well as horizontal links. He talks about "corridors and malls," which he feels are similar in nature and function to the "stations," but which, in addition to channeling the flow of people, serve as places for informal meetings and informal discussions.

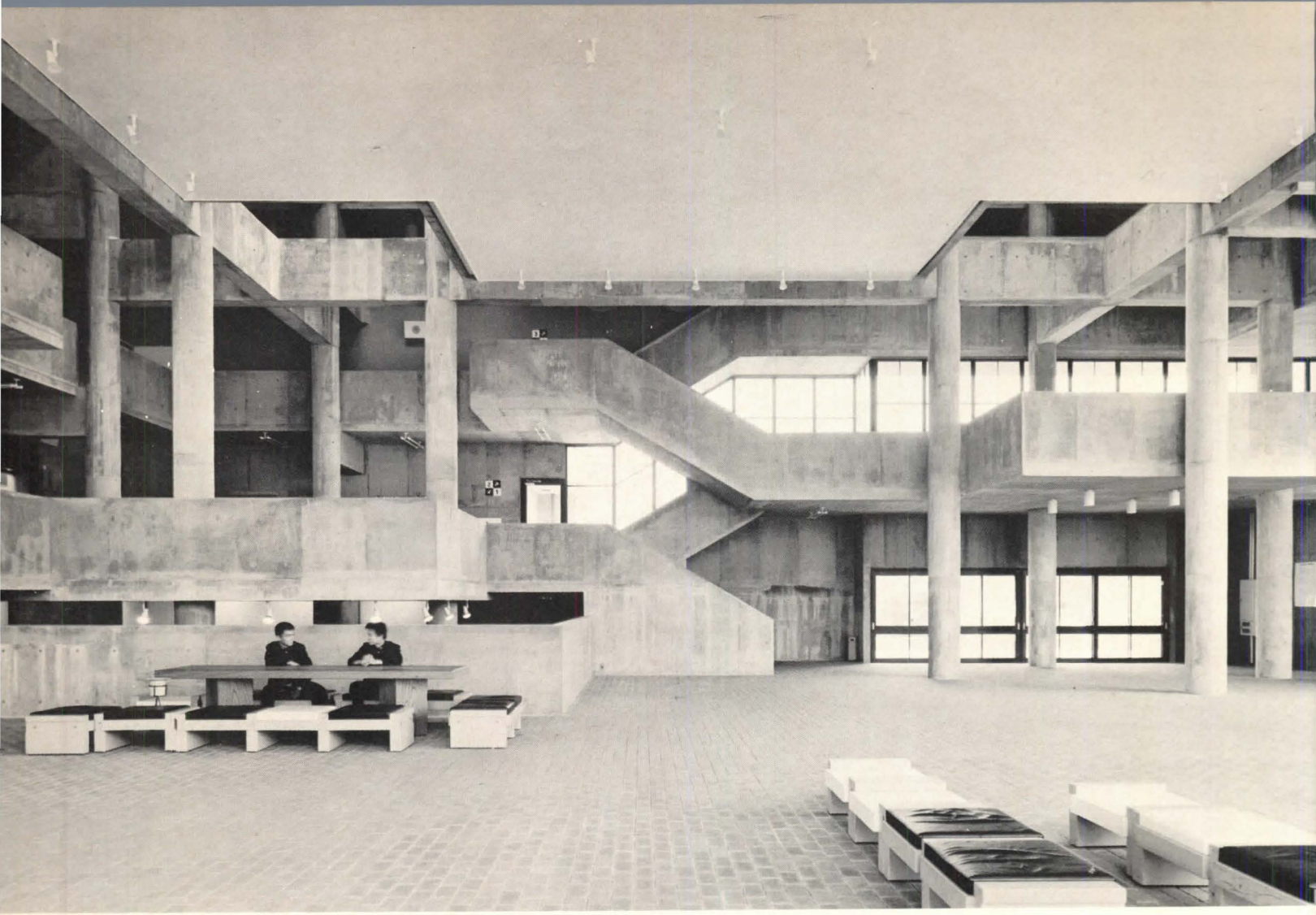
He talks about "stages," which are, again, not unlike "stations;" but "stages" also serve as sites of impromptu speeches and theatrical performances. The "stages" are located at the ends of the open plaza. "The stages connect the plaza with the interior functions of the building," Maki says, "but their nature is double since they are as much exterior as interior."

Finally, Maki talks about the "plaza," and this, to him, is the place where students, faculty, staff members, and outside visitors all meet in an atmosphere reminiscent of that of the ancient Greek agora.

So much for Maki's spatial framework. His self-imposed limitations concerning building materials led him to concrete for the structure and for all exterior finishes, and to brick for all floors; and his determination to preserve existing trees is demonstrated in the photographs on these pages.

Micro strategy

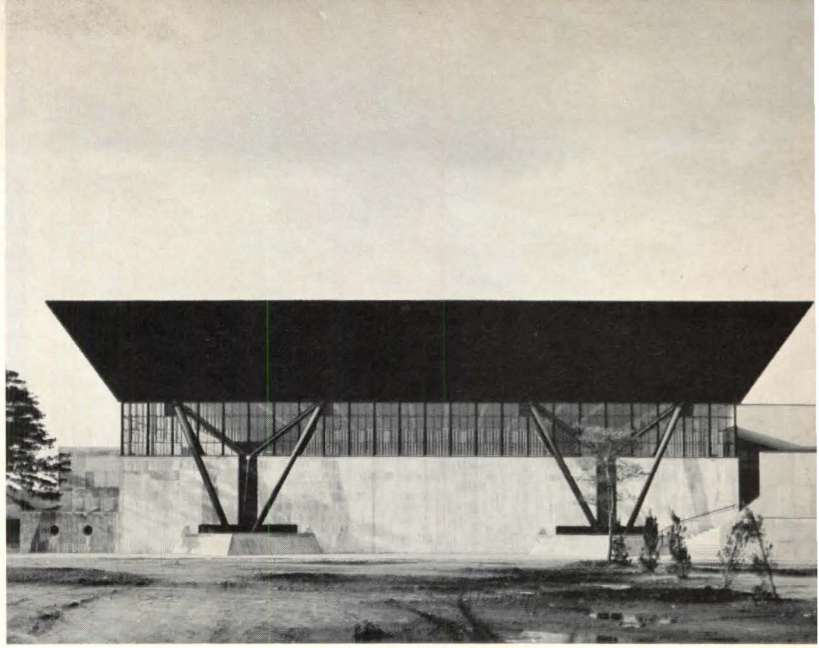
In getting down to the details of his basic concept, Maki decided, for reasons of economy, to make his building utterly frank: a structure of concrete, *filled in with* standard windows, partitions, railings; and mullions. There is no "fat" in these buildings—all superfluous finishes have been stripped off.



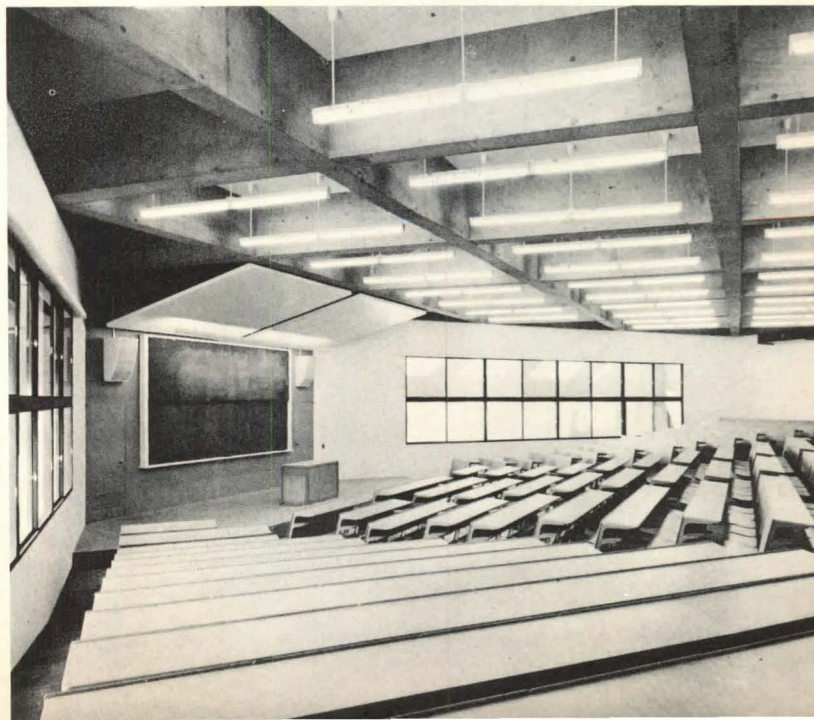




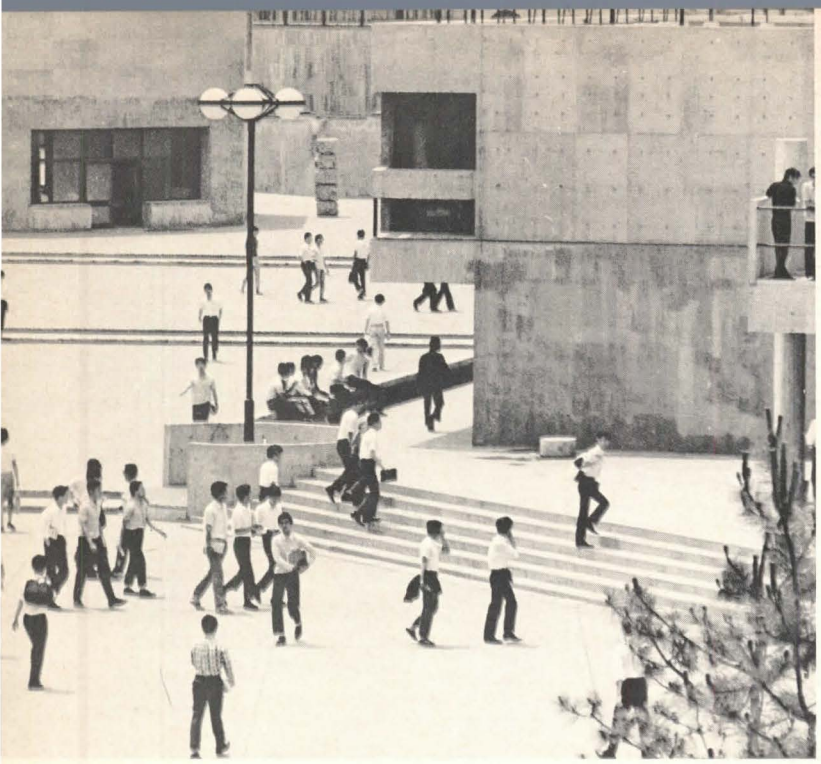
The main building is located at the entrance to the new Rissho University campus, and dominates it. Its principal space is a very large, skylit, multilevel "indoor plaza" (photos on facing page). It is an extremely effective space, made effective by the interplay of masses and volumes, rather than through the use of elaborate details and finishes. This multilevel entrance hall to the campus provides access to several levels in the classroom and to the lecture hall wing that extends westward from the main building. There is, in effect, an indoor system of public spaces and public streets on this campus that supplements the outdoor circulation, and this entrance hall is the hub of that indoor system.



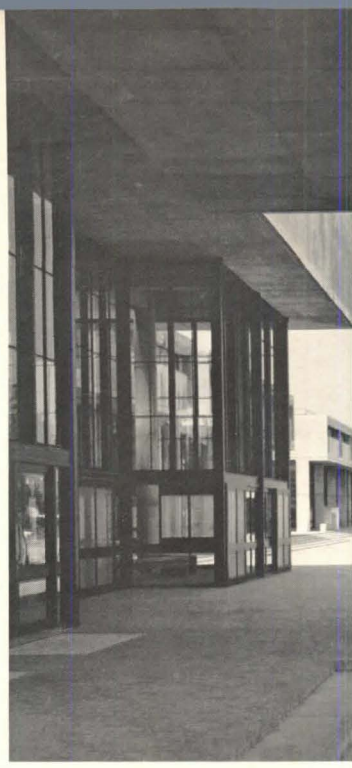




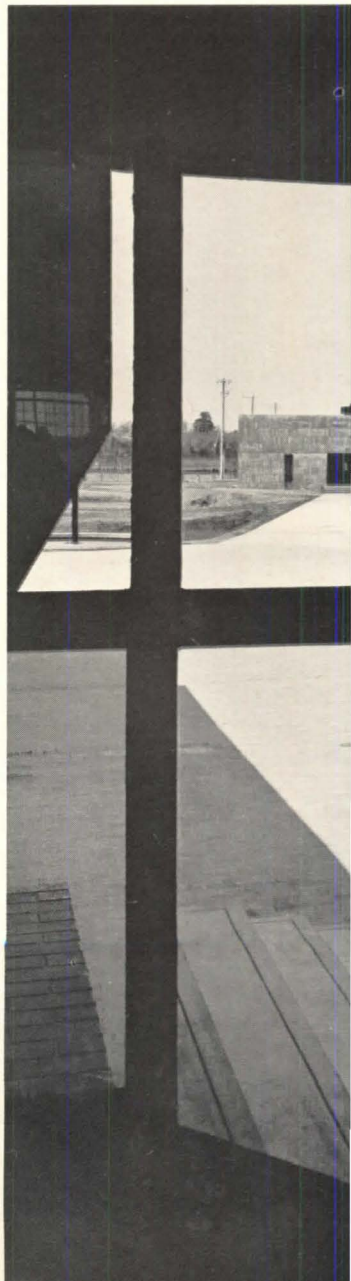
The gymnasium (top views at right) was built as part of the first phase, and is framed primarily in steel, with a steel spaceframe forming its roof. Adjacent to the gymnasium are outdoor swimming pools and other athletic facilities. One of three fan-shaped **lecture halls** is shown in the photo at bottom right. The lighting in these spaces is direct to the point, almost, of brutality, and made integral, in terms of design, with the structural frame of the buildings. Student dormitories were built in both the first and second phase on the 80-acre campus, and are not shown here.

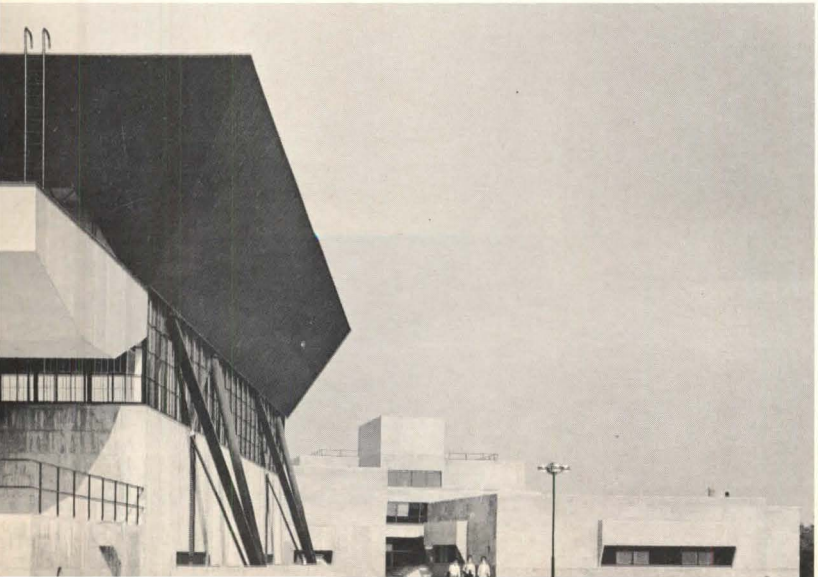


Outdoor spaces shown in the photographs at left are part of the central plaza formed by classroom and other buildings. The plaza is given unusual spatial interest by changes in level and by the introduction of stage-like platforms at entrances to buildings. Maki and his associates tried to give these outdoor spaces an urban character very different from the suburban setting of the campus. From top to bottom: steps outside the student welfare building; view (looking east) from one end of the plaza towards the campus entrance and main building; and gymnasium with lecture halls visible in the distance.









Views from inside the various buildings are shown at right. Shaded and sunlit areas alternate dramatically. Top row: view, looking west from the steps of the main building across the plaza toward the student welfare building with its stair tower; and one corner of the tall entrance hall in the main building. Bottom row: view from lecture hall complex toward the gymnasium; and another view from the lobby of the lecture hall complex towards steps leading up to student welfare building. The present capacity of the campus, with the second construction phase complete, is about 3,500 students, most in liberal arts.

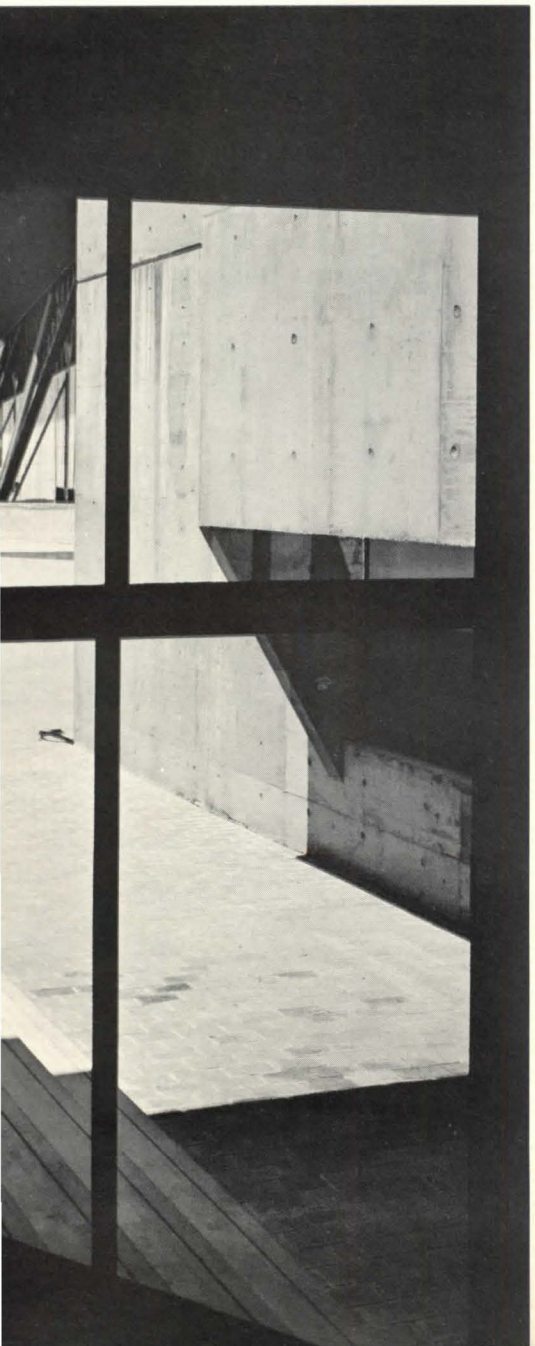
FACTS AND FIGURES

The Kumagaya Campus of Rissho University, Tokyo, Japan. Architects: Maki and Associates. Engineers: Akira Osawa and Masakatsu Yamamoto, and Shigeru Aoki—gym only—(structural); Sakurai Architectural Laboratory (mechanical). General contractor: Takenaka, Matsui, Tokyo Construction Co. Ltd. (joint venture). Building area: 214,514 sq. ft. Cost: $3,072,000 (excluding land cost, fees, and financing charges).

PHOTOGRAPHS: page 34 and page 39 (bottom right), Shigeo Okamoto, others by Osamu Murai.

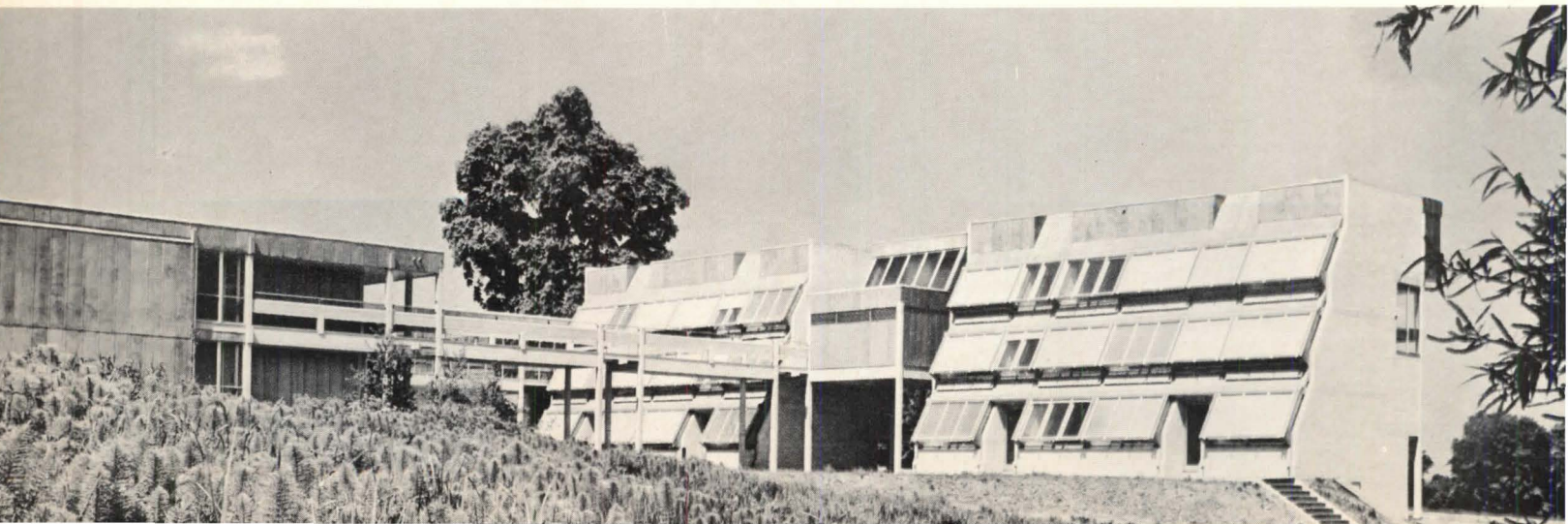












RETREAT FOR EXECUTIVES

A spin-off from England's venerable Oxford University, the Oxford Center for Management Studies was set up in 1965 as a place for six months of intensive and individualized study for top-level business executives. (Since 1953, the Oxford University Business Summer School had been giving one-month courses to middle-management executives.)

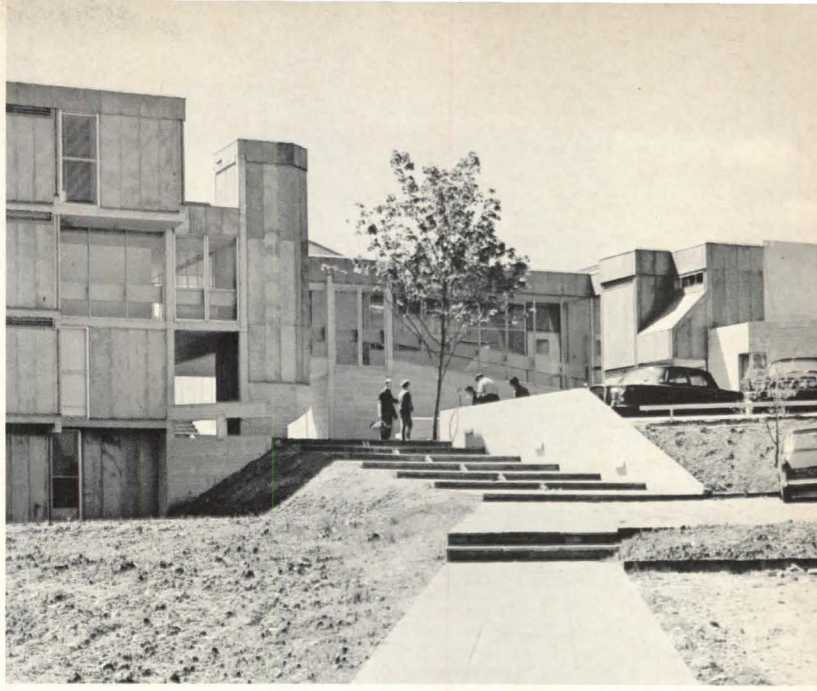
Architects chosen for the new center were Ahrends, Burton and Koralek, who were rather new themselves in 1965, having completed only one building and having barely started construction on their competition-winning library for Dublin's Trinity College (Oct. '67 issue).

The center is now operating on its 18-acre site south of Oxford. Although the building seems to be complete unto itself (with library, seminar rooms, refectory and dormitory), it is linked to the university through such invisible ties as joint faculty appointments and "time-sharing" access to the university's computers.

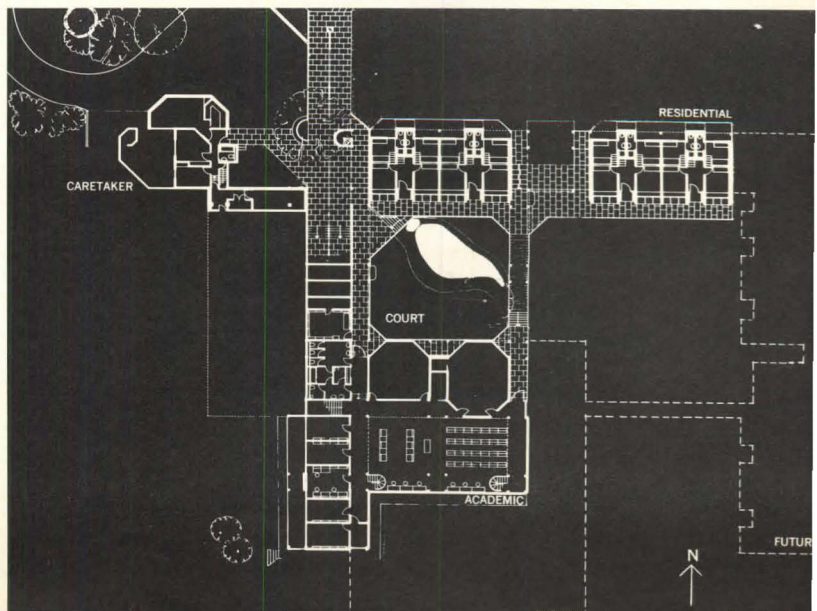
In its diverse segments, the building provides for sleeping and private study, for teaching and research, for eating and lounging. Each of the three "wings"—residential, academic and communal—can expand to several times its original size. Apart from internal relationships, say the architects, "this expandability has probably affected the form of the building more than anything else." The anticipated expansion (see plan) will create a closed courtyard like those familiar at Oxford.

For the present, though, the plan is tri-nuclear. The *residential* area contains 24 study-bedrooms, the sloped wall (opposite) giving strong visual interest to the exterior and needed privacy to the interior. The *communal* area has a dining/commons room backed up by the necessary kitchen facilities. The *academic* area has a double-height library, bounded by teaching rooms on the ground floor and by similar spaces opening off the upper-level gallery.

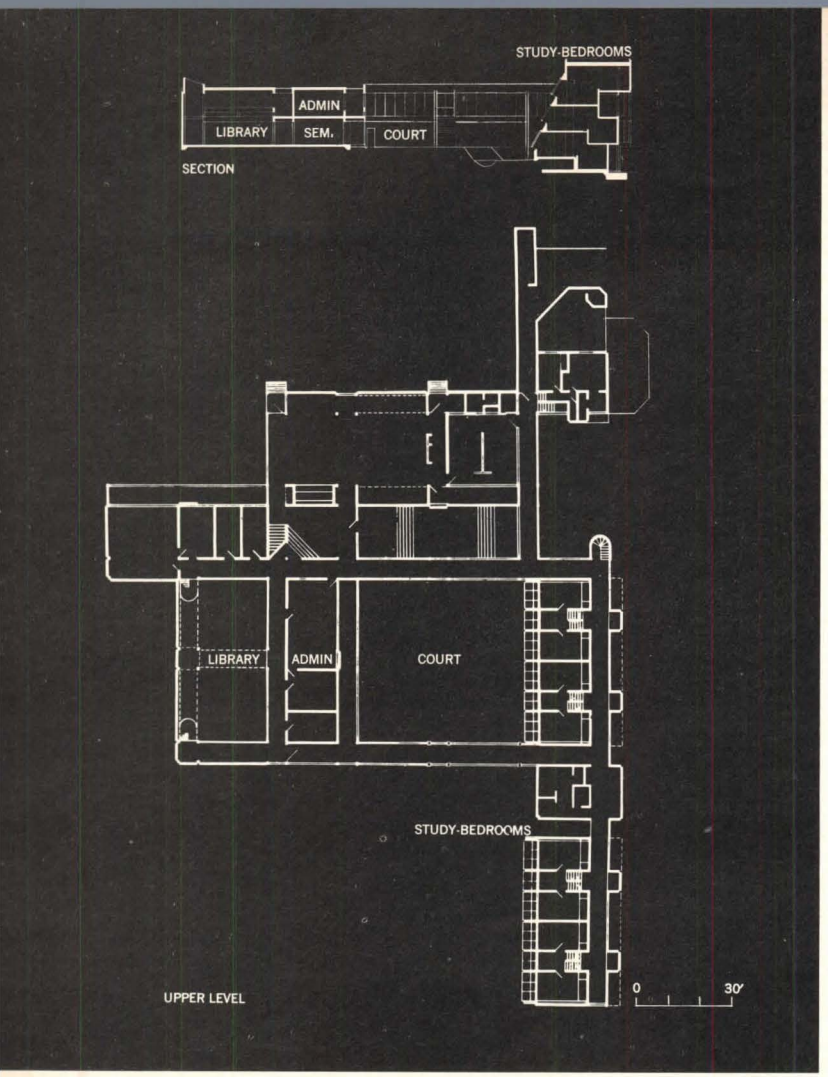
But the three wings are connected in various ways—for example, by a causeway over the entrance walk (right) and an uncovered walkway into the dormitory (opposite). The building thus has a dynamic tension among its parts, and—no minor achievement—seems satisfyingly complete even at this stage.



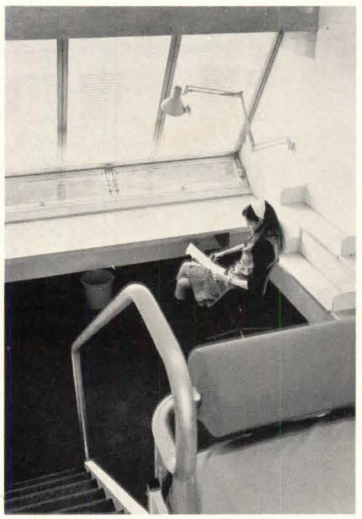




The Oxford Center for Management Studies has facilities for a six-months period of intensive study—dormitory rooms, teaching areas, communal spaces—on 18 acres south of Oxford. The residential area (opposite) has a strong facade of sloping windows; in each dormitory room a desk runs the full width of the split-level room. Note the open walkway that connects this wing to the academic portion of the center. Entrance into the whole complex (top and middle, right) is up a stepped ramp, under a second-story causeway and into an entry hall that is deep inside the building. Bottom right: future development of the center will enclose the three-sided courtyard in a manner typical of Oxford. Future site development will include sports facilities and accommodations for post-graduate students.





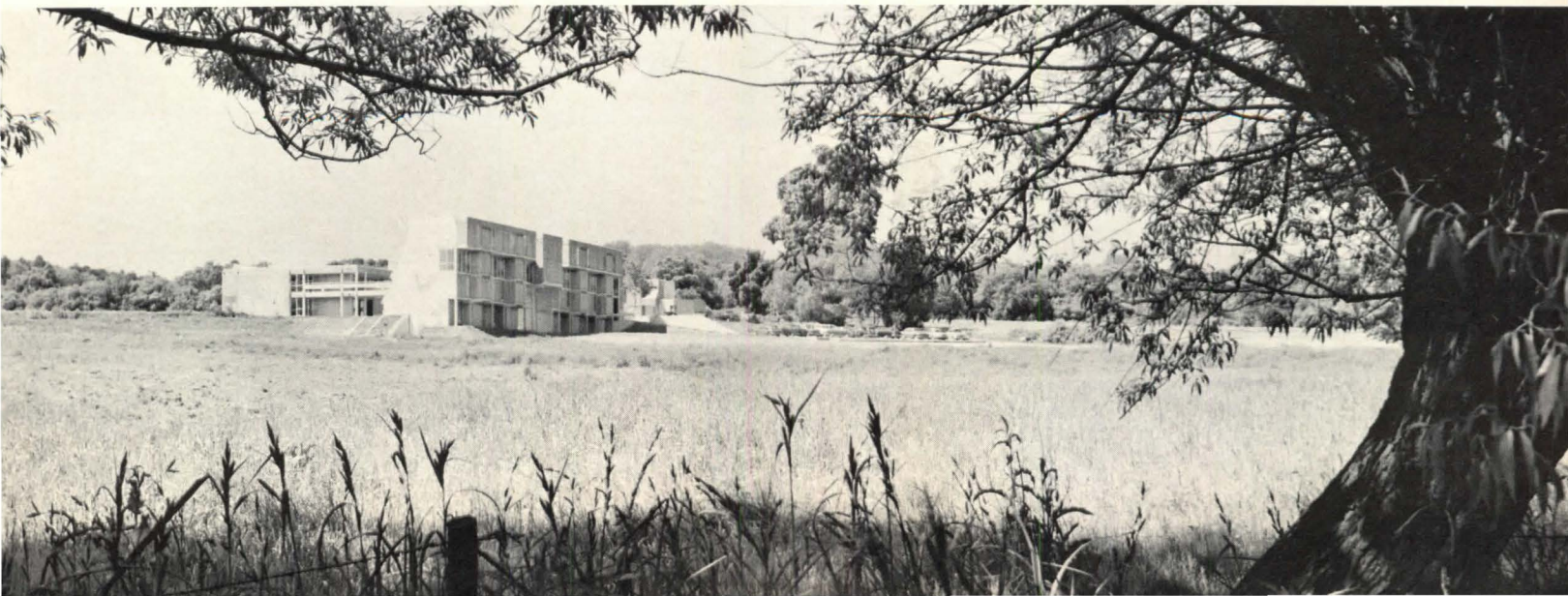


Each of the 24-bed-study areas is split-level (see section, top left). The study area (left) faces the double-glazed sloping window (far left), with a small sleeping area either six steps above or below. Passageways are consistently 6 ft. wide, working with a four-columned concrete framework through most of the complex (see plan). All circulation routes can be extended in the future, and the additional spaces hooked onto them; the four-column structural arrangement lends itself well to future galleries and corridors. Opposite top: the entry hall is a hub that is deep inside the building; circulation routes to all parts meet here. Opposite bottom: the building as seen from the approach road—a setting that is well suited to concentrated study and research.

FACTS AND FIGURES

Oxford Center for Management Studies, Kennington, near Oxford, England. Architects: Ahrends, Burton and Koralek. Engineers: F. J. Samuely & Partners (structural); Engineering Design Consultants (electrical/mechanical). Other consultants: E. C. Harris & Partners (quantity surveyor). General contractor: Hinkins and Frewin Ltd. Building area: 22,000 sq. ft. Cost: £165,000 ($396,000). PHOTOGRAPHS: John Donat, except page 42 (above left) by Simon Dell.





THE MESSAGE AS AN ARCHITECTURAL MEDIUM

BY HELMUT C. SCHULITZ

Architects have often mistaken agglomerations of graphic communication all over the world (1-5) for visual disorder. They have failed to see in them the symptoms of new economic, cultural, and technological forces within society. The emerging forms of graphic communication follow a different order, of increased complexity, that can be judged only by criteria outside the conventional fields of architecture and urban design.

For the most part, these graphic forms have been either neglected or attacked by people concerned about the visual quality of the environment. But any attempt to fight against the symptoms is futile unless it starts with changes in the structure of society itself.

Why fight or neglect these forms of graphic communication? Those who are concerned

Helmut C. Schulitz is an assistant professor of urban design at the University of California at Los Angeles. Most of the photographs accompanying the article were taken by him on trips through the U.S. and Asia in 1967 and 1968.











about environment should realize that such forms can be judged according to esthetic criteria similar to those we are used to in the visual arts. The Chinese building, covered with commercial graphics (6) can be compared with the collages of Schwitters or Malevich (7). American roadside cities (1) look like three-dimensional collages which, without commercial signs, would lose their visual integration.

Graphic communication has the power to make dull environments more exciting. But architects apparently overlook the fact that visual excitement evolves automatically through the processes of urban life.

Despite the acceptance of Adolf Loos's theory," and "Ornament and Crime," and despite the familiarity of the "less is more" principle, architects have never freed themselves from their concern about ornament and composition. Today, as the decades dominated by the "less is more" philosophy seem to have passed, the trend is a regression toward superficial decorative effects. Architects have generally failed to realize that commercial vernacular makes artificial ornament redundant.

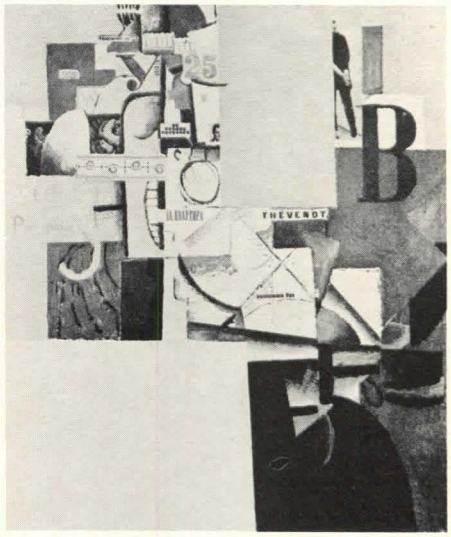
Some architects, however, have recognized the potential power of the vernacular. But since they still want to predetermine the appearance of their buildings, they have transformed the vernacular into more pretentious designs called supergraphics (8).

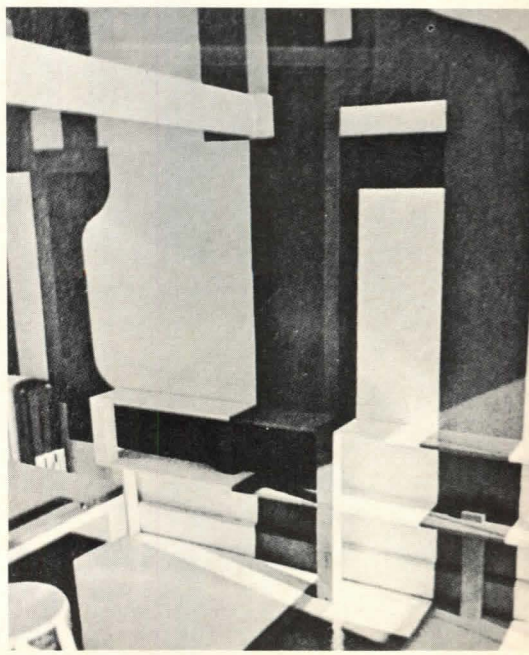
These supergraphics have basically the same visual effect as commercial graphics: they ignore or even destroy architectural form. But by their very nature, they are predetermined, formalistic ornaments, which—whether subordinated to the architecture or dominating it, as supergraphics do—are farcical compared to the evolutionary collages of the commercial vernacular. These collages are unself-conscious and dynamic expressions of urban life; the unchangeable ornament is obsolete, like architecture that cannot respond to change.

User-generated changes in ar-



A new International Style based on graphics: 1 Los Angeles, 2 New York, 3 Delhi, 4 Istambul, 5 Tokyo, 6 Taipei. Graphics in art: 10 Malevich's Lady at the Advertising Pillar, 1914. Supergraphics: room by Doug Michels, 1965.

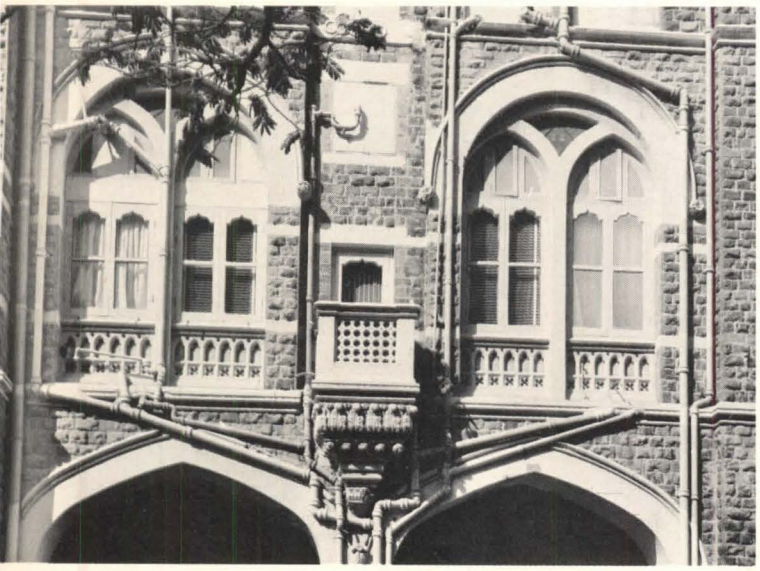




chitecture could be looked upon as a kind of "ornament" created in an unpredictable process. Only outdated preconceptions prevent us from considering architectural modifications—for example, the pipes on the facade of the Taj Mahal Hotel in Bombay (9)—as a kind of sculpture. One could, in fact, contend that they form a more dynamic accessory than all the Neo-Gothic embellishments of the original design. The drying clothes and other individual changes of the facades in downtown Hong Kong streets (10) are examples of kinetic accessories to otherwise miserable looking buildings. Without preconceptions, these artifacts could be accepted as ornaments inadvertently created by the user, like the patterns of randomly illuminated windows at night.

Preconceptions are also behind the common rejection of commercial vernacular. Billboards without commercial messages are often accepted much more readily. We see this in recent attempts to mount posters designed by contemporary artists on regular billboards (for instance, Roy Lichtenstein's "sunset"). The commercial characters that cover a Chinese supermarket (11) take on an abstract expression for those who do not read Chinese, comparable to certain paintings by Soulage or Prachensky (12). Whenever architects have borrowed forms from vernacular environments as architectural images, they have tended to transform them into static, monumental art forms by changing content and context. In this way architecture has dissociated itself from reality; its forms have remained, as have the forms of art, only a statement about the understanding of life, and have *not* become a part of life itself. If we want an architecture which is not remote from life, we must accept the vernacular in its vulgar form as part of architecture. We will have to integrate it, not transform it.

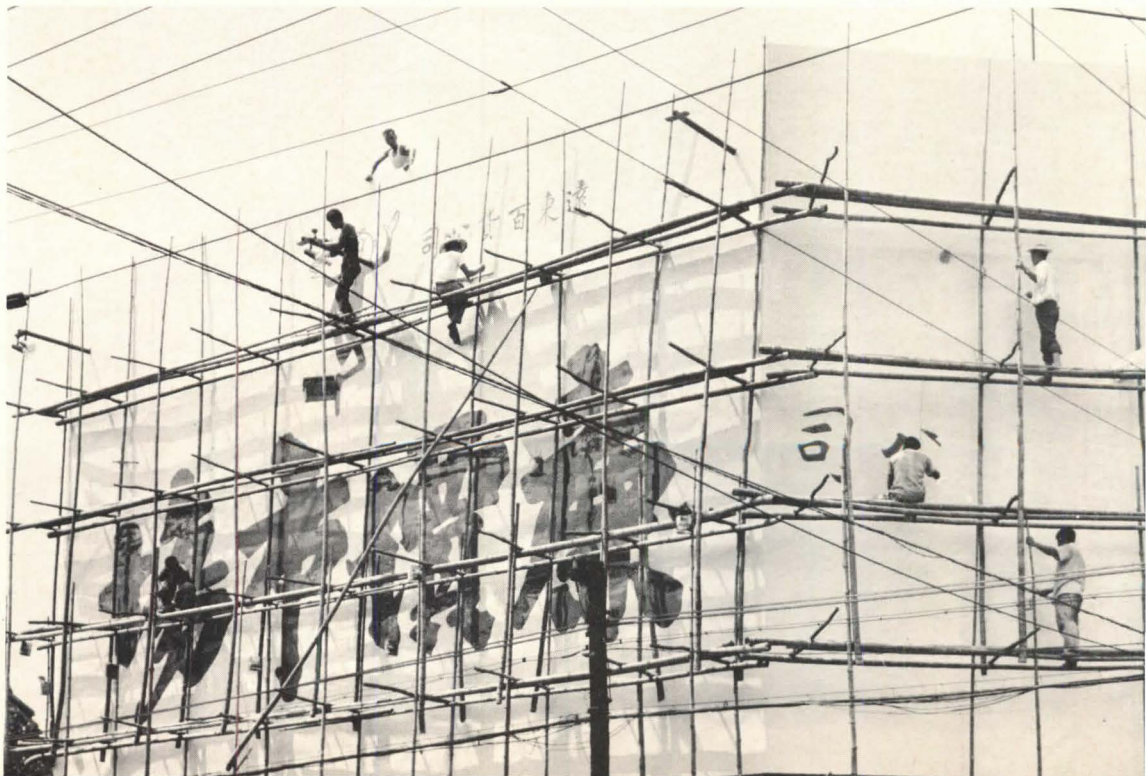
Lettering as a communications medium has been used only very reluctantly by architects. A





Inadvertent ornamentation: 9 Taj Mahal Hotel, Bombay; 10 Hong Kong street. Advertising as inadvertent art: 11 Discount market, Taipei. Art based on graphics: 12 Markus Prachensky, Rot auf Weiss, 1958; 13 Carra, Patriotic Celebration, 1914. Graphics identifying misleading building form: 14 movie theater, Los Angeles. Graphics replacing architecture: 15 church tower, Las Vegas. Integration of lettering and building: 16 drive-through restaurant, Los Angeles; 17 Herbert Bayer, newspaper shop design, 1924.





total integration such as we have been seeing in painting since the early works of Picasso, Braque, Carra (13), and others has not come about in architecture.

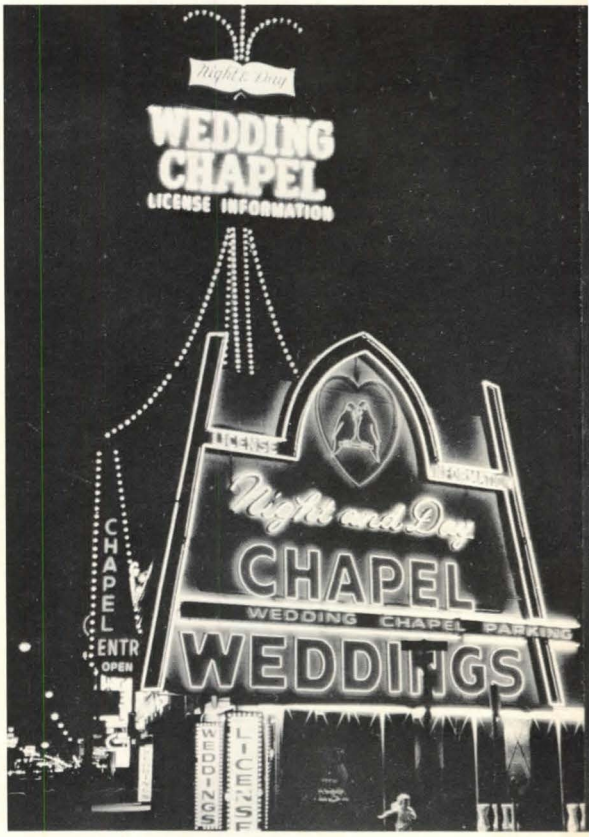
In rejecting lettering, architects have used the arguments that good architecture conveys its identity without the help of graphic communication and that a functionally well-organized building will show the user his way without signs. Today, however, multifunctional structures and rapidity of change make additional communication media necessary. Functional changes occur faster than buildings deteriorate or can be justifiably demolished. Graphic media have to be used to reassign new functions to an unchangeable architectural enclosure. It is often graphic communication, rather than form, which identifies buildings; without signs, the Arlington Theater (14), would look like a church.

It is no longer appropriate to give identity to buildings through specifically tailored form. Only in very few cases is there a relationship between the form of the architectural enclosure and the function. The majority of activities take place in unspecified spaces that can accommodate interchangeable functions and derive their identity from their equipment. The form of architectural enclosure will become less and less meaningful; orientation through form symbolism will be replaced by orientation through graphic communication. The church tower may even be replaced by the billboard (15). As in the case of consumer products, graphic communication will become inseparable from enclosure. Lettering on architectural enclosures will not only improve orientation but also intensify the process of learning.

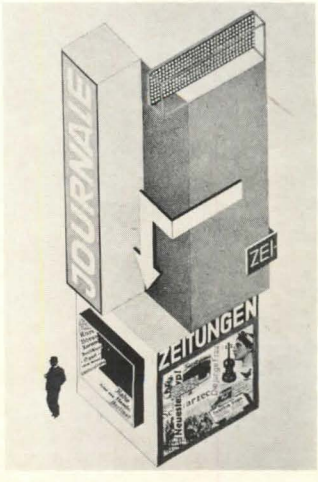
Examples of total integration of graphic communication and architecture are found today only in anonymous commercial architecture (16) which is unconsciously linked with the pioneer work of certain designers of the 1920s—for example, the project of Herbert Bayer (17). Books on











the history of architecture have not yet dealt with the integration of lettering and buildings. According to Denise Scott-Brown and Robert Venturi: "The integration of the arts in Modern Architecture has always been called a good thing. But one didn't paint on Mies." One does not paint on a Venturi either, however, nor does one attach a poster to it.

Whenever an integration of architecture and graphics has been deliberately proposed, as in the works of Bayer or of certain Constructivists, it has always been confined to accessory advertisement—that is, to advertisement directly related to the functions of the structure to which it is attached. Non-accessory graphics— i.e., graphics which are independent of buildings—normally take the form of billboards or superstructures, which are often massive structures in themselves. This "communication architecture" often dominates the surrounding "enclosure architecture" (18-20).

In Los Angeles a billboard often takes the place of a building—or a building replaces a billboard. But never has the new structure been a building designed to incorporate non-accessory graphic communication. An integration of communication architecture and enclosure architecture could lead to new alternatives: huge billboard structures could also provide structural support for housing (21, 22), and buildings could simultaneously support billboards.

But architecture is still conceived in terms of closed systems—of unchangeable monuments which are not planned for any functions except their specific, internal ones. Architects have been infatuated with a clear separation between graphic communication and architecture, since this left their traditional concepts unchallenged. Maintaining the old attitude of seeing things in black-and-white terms, certain architects favor big architecture with signs as small as possible, while others have recently advocated small









Signs unrelated to buildings: 18, 19, 20 Los Angeles. Architecture integrated with advertising: 21 proposal by author; 22 Mojave Desert project, by author with Engelbert Zobl and Dale Dashiell.

architecture with signs as big as possible. Future architects should abandon limiting ideologies and concern themselves with the integration of many factors which today are not yet considered part of architecture. Architecture should be conceived as an agglomeration of different components that can be experienced and can change in unpredictable patterns. The commercial vernacular is only one of many such components which have so far hardly been considered as integral parts of architecture.



LEGAL REDRESS OF ENVIRONMENTAL DISRUPTION

BY JOSEPH L. SAX

Environmental problems are not a novelty in American courtrooms. Judges have traditionally abated pollution as a nuisance, at the behest of nearby property owners, and it is quite common for government agencies to obtain judicial enforcement of their orders regulating the use of land, water and air. During the last few years, however, a novel court action has been developing which has important implications for our whole way of dealing with environmental problems. These new lawsuits are characterized by three facts: First, the plaintiffs are private citizens, not public agencies. Second, they sue not as property owners nor as protectors of any conventional private interest, but as members of the general public asserting rights claimed simply *as* members of the public. And finally, the defendants are frequently the very governmental agencies that are supposed to be protecting the public interest.

Such cases arise in many contexts. They may be brought against a highway department to challenge the location of a new road, or against a pollution control agency for not enforcing the law adequately. A private industry or utility company may be sued to enjoin its plans for locating a new plant or transmission line. Together, these cases are a sign that the victims of environmental disruption want to get back to governing themselves, and are no longer willing to leave their fate to bureaucratic hirelings.

In the past, the job of protecting the public interest was left exclusively to governmental administrators. When a citizen did try to intervene, he was promptly excluded as an interloper, a busybody who should leave regulation to the experts. Thus, for example, it was said that a private citizen had no "standing" to challenge governmental regulation on behalf of the public. In the last few years, however, these restraints have begun to fall away; even the most tradition-minded judges have come to recognize that the private citizen has a legitimate, and at times essential, role to play in the determination and implementation of the public interest.

The decision to lease submerged lands for oil drilling off the California coast at Santa Barbara illustrates the problem. Despite the great difficulty of obtaining information, local citizens were most dubious about the project. As one Santa Barbara official later recalled, the problem of spillage "was discussed many times, but always Interior Department and oil industry officials led us to believe we had nothing to fear. They said they had perfected shutoff devices that were foolproof even in such disasters as a ship running into the platform, or an earthquake."

Later events at Santa Barbara demonstrated how misplaced that confidence was. The distressing part of the story, however, is not that those who ought to have known better were wrong—but rather that every effort to open such issues to inquiry was brushed aside or ridiculed because other, more powerful forces had already predetermined the leasing question.

When questions were raised by concerned citizens, for instance, federal officials responded publicly with a letter saying "we feel maximum provision has been made for the local environment and that further delay in lease sale would not be consistent with the national interest." Privately, though, an interagency memorandum commented that "the 'heat' has not died down but we can keep trying to alleviate the fears of the people" and noted that pressures were being applied by the oil companies whose equipment "costing millions of dollars" was being held "in anticipation."

The eagerness of Interior Department officials to arrange the leasing quickly and quietly was made clear in their privately circulated memorandum (written when it was learned that another federal agency was considering holding public hearings at Santa Barbara prior to the leasing).

". . . Of course, how they handled the public was their business, but we did not have to participate. . . . I pointed out that we had chosen not to go the public hearing route . . . that we had tried to warn the . . . District Engineer of the Corps what he faced and we preferred not to stir the natives up any more than possible. [*sic*]"

Not an unusual case

The eagerness of the Interior Department to go forward with the leasing was made quite clear, after the oil spill, when the responsible officials testified. The former Secretary of the Interior explained it succinctly—the Bureau of the Budget was "hungry for revenue" and "a Presidential decision had been made about getting more money to help balance the national budget. . . . Communications from the budget bureau were indicating to us that we should have a maximum leasing program."

These considerations were reason enough to persuade the Interior Department. And from their perspective, the choice could hardly have been different. It is not the Secretary of the Interior's job to undermine the President's programs; he is —as we are so often told—a member of the President's team. The question, however, is who was representing the interests of the citizens of Santa Barbara and of the general public who have a stake in that environment? Not the oil companies; not the Interior Department; and not the citizens themselves, who had no real opportunity to participate in the decision. They were merely bystanders, passive recipients of publicity-release assurances that all was well.

The Santa Barbara case is not unusual; indeed it is typical of a most pervasive and central fact about the administrative

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Mr. Sax is professor of law at the University of Michigan. Under a Ford Foundation grant he is writing a book on environmental litigation, to be published by Alfred A. Knopf early in 1971. The Annals of the American Academy of Political and Social Science has given permission to quote here portions of an article prepared for their May, 1970 issue.

process. Regulatory agencies have an interest and perspective of their own which is at times inconsistent with that of significant segments of the public whose interest the agency is supposed to be protecting. An agency which has been in the business of selling timber or building roads does not easily adapt to new public policies going beyond mere managerial and technical regulation, and requiring a broad-ranging consideration of environmental consequences. Highway departments do not find it easy to ponder the considerations for *not* building roads.

These difficulties are not unique to problems of the environment, but they are being dramatically illustrated in this area because environmental problems clearly reflect the modern view that government should bring a variety of perspectives to bear upon the resolution of problems. Thus, the elements which peculiarly characterize the administrative process—narrow technical expertise, managerial rather than policy orientation, historical association with particular interests, and concern for its own budget and its own programs—tend to lock it into a limited "inside perspective." We need a fresh point of view.

Opening a new forum

Citizens have been turning increasingly to the courts because the judiciary offers an opportunity to bring a fresh and uncommitted perspective, an outsider's perspective, to environmental problems. Plainly the rise of citizen-initiated litigation is not caused by a belief that judges are wiser than other officials, or that they should determine our environmental policies. Litigation represents an attempt to bring concerned citizens into the decision-making process by opening a forum in which there is relative equality of access and in which the issues are considered in the open and on their merits.

Frequently, the relief sought from the courts is in essence a "remand" to the legislative process so that controversial decisions, and unresolved conflicts of policy, can be put openly before elected representatives. This technique is pointedly illustrated by a series of recent cases in Massachusetts.

Referral to the legislature

Citizens challenged the highway department's decision to take parkland for its own use, and the court noted a disturbing insensitivity on the part of the highway agency to the state's concern for its public parks. The defendant highway department claimed it had ample authority, under a broad statute authorizing it to "improve" the lands of the commonwealth; thus, it said, its decision to take parkland at will must be respected by the judiciary. This arrogance was too much for the Supreme Judicial Court of Massachusetts. The court held that before the highway department could take parkland it must obtain specific authorization from the legislature.

Technically, the court ruled that the highway department lacked adequate authority to seize parkland at will. Essentially, however, the purpose of the lawsuit was to put the issue before the legislature where it would have to be confronted and resolved in the full light of public attention. The court thus ruled:

"It is essential to the expression of plain and explicit authority to divert parklands . . . to new and inconsistent uses that there appear in the legislation not only a statement of the new use but a statement or recital showing in some way legislative awareness of the existing public use. In short, the legislation should express not merely the public will for the new use but its willingness to surrender or forego the existing use."

It is with holdings such as this that courts respond to citizen pressures to democratize the decision-making process as it affects issues of environmental quality. The events that followed this particular decision are described in a letter written by the plaintiffs' attorney:

"The Legislature of Massachusetts had more discussion over the Fowl Meadow, the parkland involved in the case, than almost anything else . . . in 1969. . . . After a Herculean effort, the House of Representatives in Massachusetts voted 134 to 90 to authorize a feasibility study of a westerly route, such as we have been working for. However, our local highway department brought out its troops in the form of at least six men who spent most of the week in the State House and, after reconsideration, obtained a bill for an opposite route by the narrow score of 109 to 105. The Senate concurred after removing some amendments and the Governor signed the bill. However, the whole subject of superhighway construction . . . has been put in the hands of a seven-man commission which is to report whether any new highways are needed. . . . In the meantime, the Governor has stated in public and written us that he will not permit the transfer of the requisite parkland."

To be sure, such litigation does not assure that the advocates of any given position will triumph, or that the legislature will necessarily produce a wise resolution. It does, however, help to move questionable decision-making into a forum where issues of policy must be articulated openly, and where legislators must assess the political consequences of taking one position or another. Measured against a system which has been characterized by its responsiveness to particular and limited perspectives, and by its penchant for quiet resolution of potential conflict (often revealed in the attitude that the less the public knows, the less trouble there will be), judicial intervention of the type described above is a significant step forward.

Plainly the fundamental problems of environmental quality go beyond the confines of a particular case. No single court decision will resolve the issue of population, or the automobile versus intelligent mass transit, or the inclination toward uncontained economic growth. Judicial decisions do, however, bring home the costs that these problems impose upon particular communities in specific contexts. The difficulties we have in pricing and managing external effects take on sharply visible contours when a highway location is challenged in each town through which it passes, or when a polluting industry is challenged to justify its conduct in a discrete context. Each case, then, thrusts back upon the policy-makers the requirement that they face up to the cumulative effects of their decisions, and gives those upon whom such external costs are imposed a chance to put a price tag on them in terms of their own discomfort and inconvenience. Wars are fought battle by battle, not in place of a grand strategy, but to effectuate it.

It has been traditional to tell complaining citizens to take their problems to the legislature, or to assume that the ballot box will ultimately assure effectuation of the public will. But the electoral process, as those who have suddenly awakened to see the bulldozers at work well know, is a very blunt instrument. In the swirling multitude of issues between periodic elections, it is not easy to cast a ballot that says I disapprove your highway policy, approve your stance on foreign aid and abhor your farm policy. Nor is it realistic to try to get a law enacted to stop a project which is to go forward within a matter of days or weeks.

The best hope for change

We are also asked to have faith that administrative agencies will cure themselves of their traditional narrowness, and hope that legislative mandates ordering them to undertake broader perspectives will bring significant changes. Perhaps these changes will occur; thus far the process has been so slow as to be almost imperceptible. It is time to recognize that the prospect of external scrutiny, such as the courts are prepared to employ, may itself be the most effective remedy for slothful administrators, and that no one is so likely to seize the needed initiative as the private citizen whose principal interest is as victim of environmental degradation.

The technique described above—essentially a judicial remand to the legislature—is one device that is now being tested. In essence it says, yes, the citizens should go to the legislature, but a court order may be needed to assure that they can get there in time, and under circumstances which help to assure that their voices will be heard. It may seem ironic that courts are needed to help make the legislative process work effectively; that citizens must come to the least democratic of the branches of government to make democracy work. But that is one of the intriguing questions now being explored under the label of environmental litigation.

TEAHOUSE BY THE POOL

The pool had been built primarily for swimming. But it was so large—and fitted so nicely into the wooded site—that the owners kept it filled all year around as a pond. What they wanted was a simple guest-house-retreat (potentially heated) from which to enjoy the view in all seasons.

Fortunately for them, they found James Stewart Polshek, a young New York architect who had lived in Kyoto and understood just what they wanted. Polshek calls the little building he designed "an abstracted teahouse." It has features of the traditional model: exposed columns and beams, sliding doors that disappear into pockets, and covered decks outside the doors. There are even stepping stones and a moon-



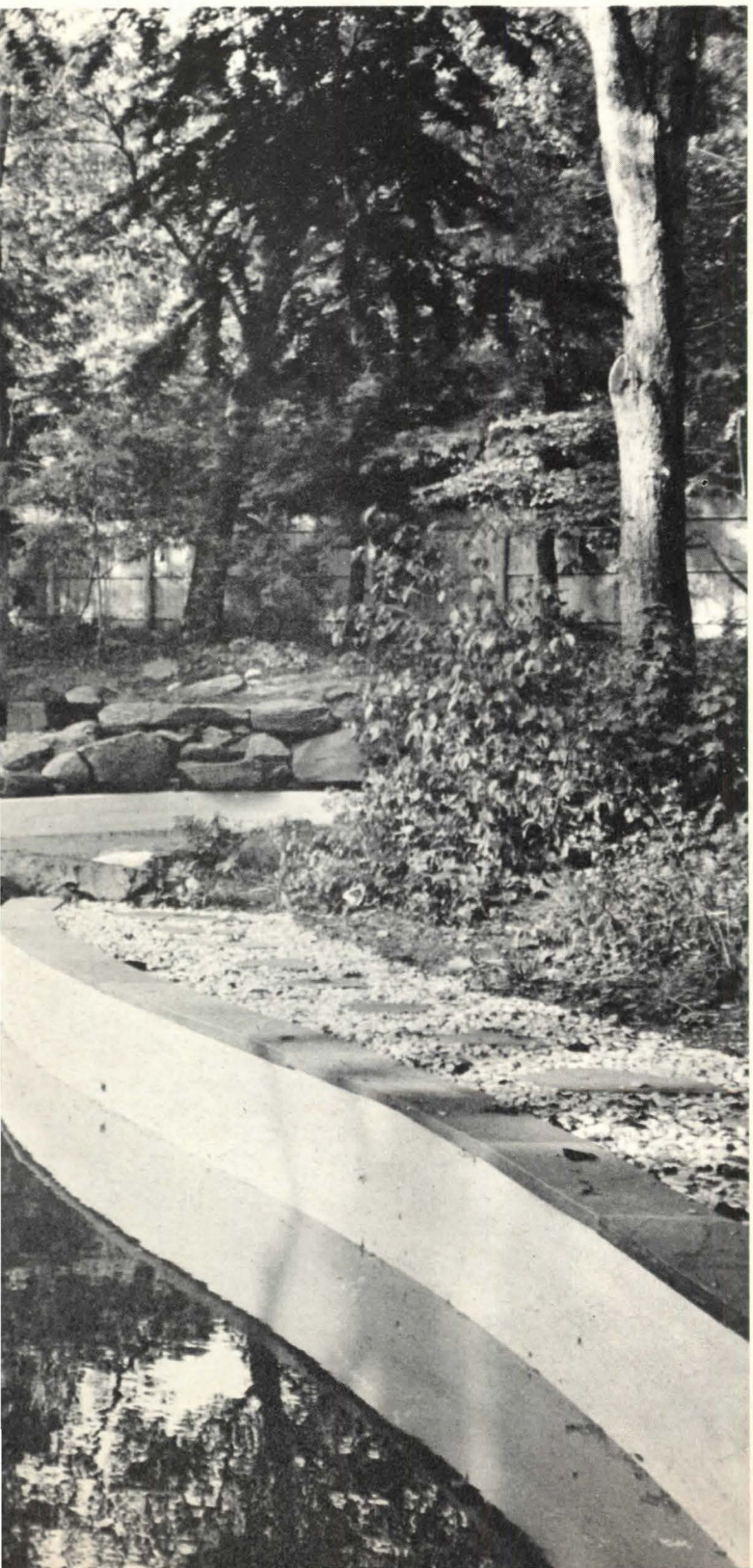
viewing platform (which doubles as a sun deck).

The plan seems to meander, Katsura-fashion, but it is actually based on a strict geometric scheme of three interlocking squares. Each square is supported on five telephone-pole columns—four at the corners, joined by exposed steel connectors to diagonal wood beams that converge on a column at the center. The central column of each square is also a corner column for another square. Telephone poles were a natural choice for the columns, not only because they can stand in the water or in the ground, but because their dark, cylindrical forms—rising outside the walls—can almost be mistaken for tree trunks.

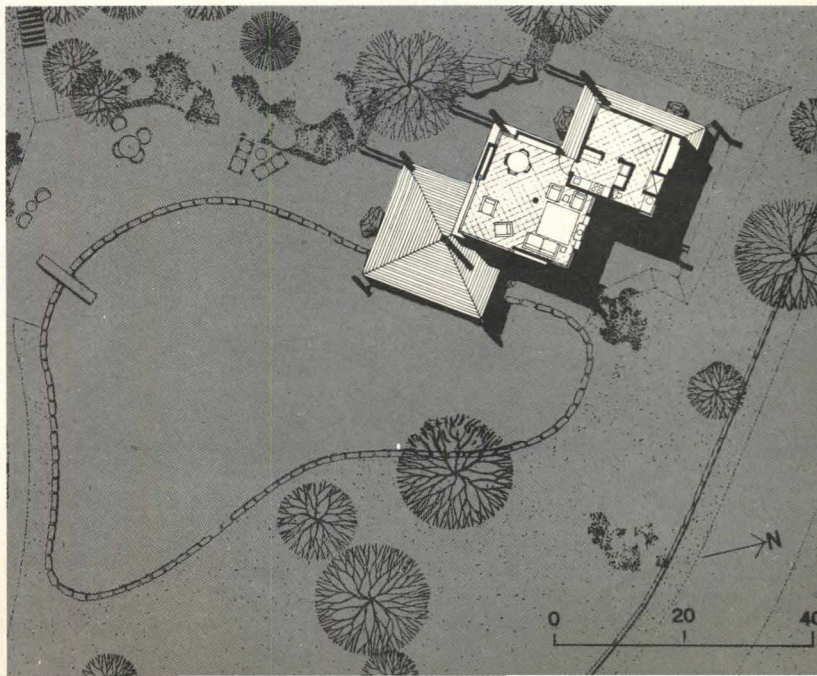
Between these dark poles, the wall and roof planes—sharply defined by white-painted edges—appear almost suspended. The roof structure is not, of course, thicker than the floor structure. Its deep fascia conceals a slightly pitched roof, with exposed beams on the interior. Visually, the roof provides a firm, protective cover for the composition of exposed framing and movable walls beneath it. In Polshek's words, the fascia "compensates for the heavy roof of traditional Japanese buildings."

FACTS AND FIGURES

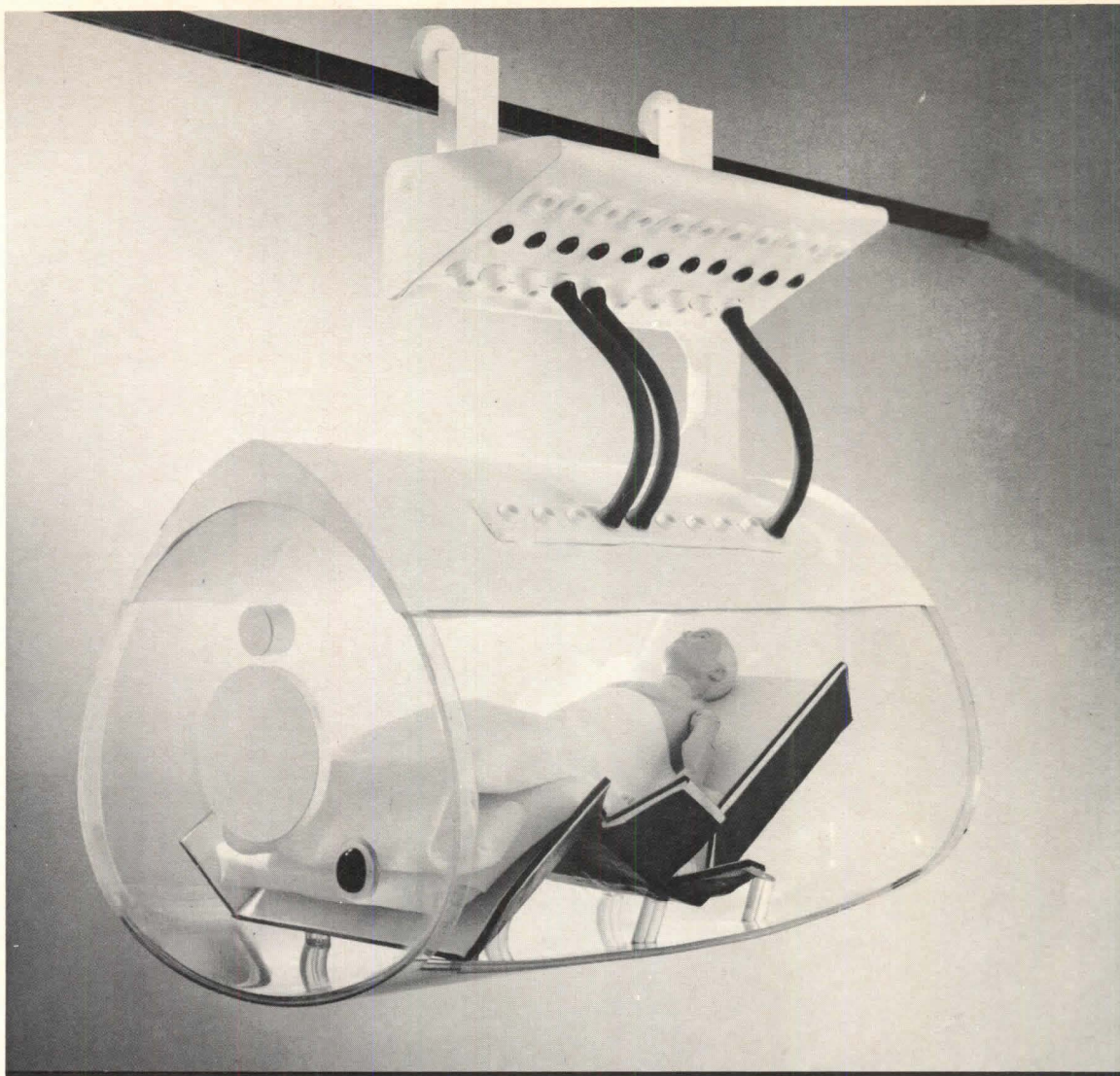
Pool house, Port Washington, N. Y.
Architect: James Stewart Polshek.
Engineers: Theodore Kwoh & Associates (structural), Ian Grad Associates (mechanical). General contractor: Burton Saks Construction Corp.
Building area: 876 sq. ft.
PHOTOGRAPHS: Robert Beckhard.

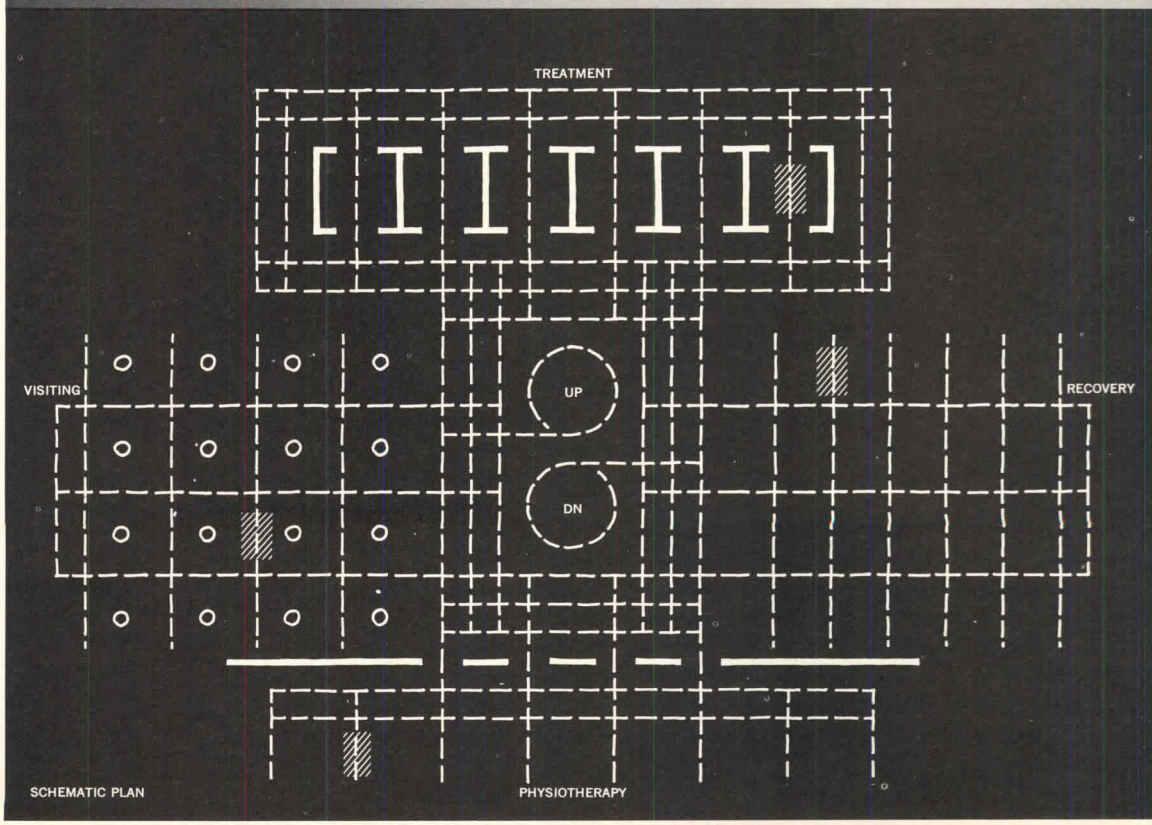




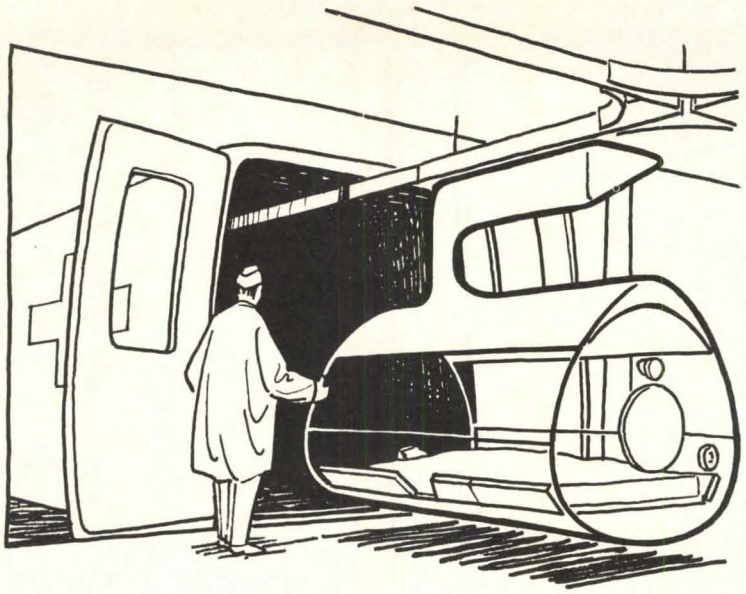


TECHNOLOGY




TREATMENT
VISITING
UP
DN
RECOVERY
SCHEMATIC PLAN
PHYSIOTHERAPY

CAPSULES REPLACE HOSPITAL ROOMS



RECEIVING

A plastic capsule that looks like a one-man spaceship, and will use some of its technology, may well be the hospital room of tomorrow.

Intended for short-term medical care of two to five days, the self-propelled capsule moves on a monorail, surrounding each patient with a centrally-monitored, portable and private, germ-free environment. It promises to shorten his hospital stay, protect him from infection, improve medical care and, perhaps, cut costs.

In the process, the capsule system could eliminate hospital buildings as we know them today and replace them with a transportation network and stations, with the capsule whisking patients between treatment, recovery and visiting areas. Medical criteria, not architectural limitations, could determine the hospital's plan.

The system's creator is William N. Breger, a New York architect and former chairman of Pratt Institute's Department of Architectural Design in Brooklyn. The concept evolved from his experiences as a designer of chronic hospitals and, more recently director of a Pratt study to determine where and how the city's general hospitals could be expanded, automated and made more flexible. The study, commissioned by the New York City Department of Public Works, convinced Breger that conventional hospital design couldn't do its job—hospital buildings were becoming monstrous and medical care was suffering. He pulls out statistics to emphasize his point: "Nurses and aides spend up to 75 per cent of their day walking. One of seven patients picks up new infections from the hospital."

Two aspects of conventional plans for general hospitals particularly disturbed Breger. First, long and short-term patient care areas used essentially the same kind of spaces—rows of motel-like rooms with beds and patients set in each. Yet short-term patients require more intensive care and more mechanical support than long-term patients who may require more space and psychological amenities. Second, Breger thinks it is more logical to automate the patient than to automate hospital goods, which may have to be at bedside almost immediately.

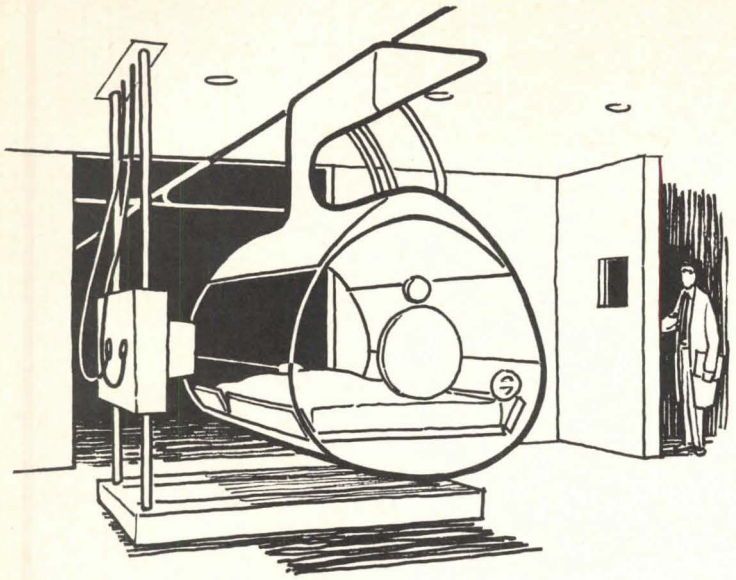
1984 next year

The capsule is now well past the realm of science fiction. According to Breger, several hospitals have shown interest in installing the system, particularly in special care areas. He has been working with a consulting engineer, Fred S. Dubin, a former Pratt associate. Dubin says a demonstration version of the system, based on existing technology, could be ready for experimental installation in only 18 months, unless insufficient funds stymie development. Bob Parnes, who works in Breger's office, has already built a model of the system.

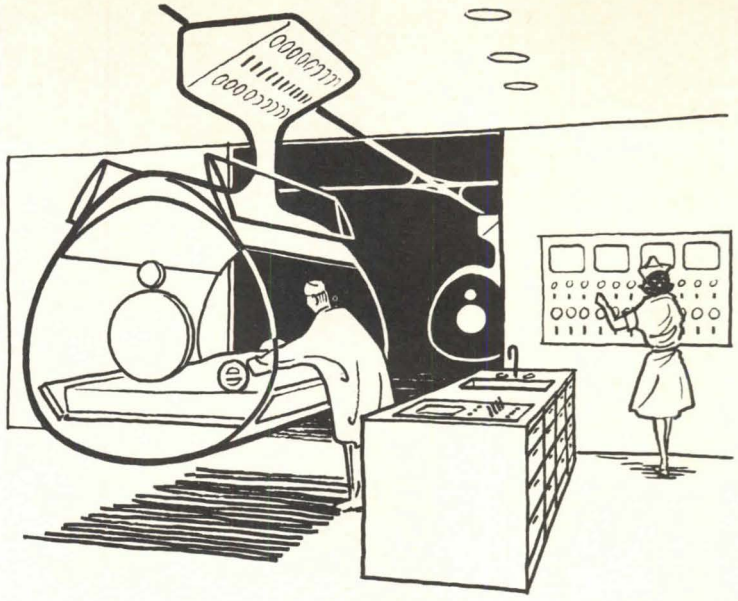
Dubin stresses that the initial system, as it could be installed in 18 months, would have solved only the basic engineering and technical obstacles. Research and development would continue, with innovations being introduced as they become economically and medically feasible.

Much of the technology, however, exists today, some of it in the space program. Determining the medical criteria for applying the technology is the greatest problem. Says Dubin: "Hospitals are still using bedpans, but not because there isn't new technology available," such as incineration and recycling. On the other hand, many use remote control monitoring of vital body signs for intensive care units; controlled, enclosed environments, for premature baby units; germ-free conditions for burn treatment areas; long-accepted oxygen tents; and other medical apparatus.

Available space technology includes techniques for air control and distribution; waste disposal; survival and adaptation to existing in enclosed, moving space;



X-RAY



TREATMENT

propulsion; and communication.

Before joining Breger on the capsule project, Dubin worked on a government study to find new applications for space technology. He is particularly optimistic about the feasibility of simplifying and adapting space systems for installation in the hospital capsule system.

Picture yourself

The first patient in a totally capsulized hospital will enter a new world. He'll be in and out of the hospital fast, and an ambulance may deliver him there already packaged. For up to five days, until he is discharged as an outpatient or transferred to a long-term care unit, the patient may never leave his capsuled environment.

If the patient needs a new set of sheets, the nurse will take care of him at a nursing station, where she can treat each patient with assembly-line efficiency. If a visitor comes, the patient will be notified and he will speed out to a visiting area for a chat, then return, still in his capsule, to the recovery area for rest. If he may walk, he can press a button and ride out to an ambulatory or exercise area, where he can get out of his capsule.

Movement and other adjustments will be centrally controlled by the professional staff, who communicate to the patient with intercoms, TV etc. The patient will also have a set of controls for situations not dictated by medical requirements. For example, he will be able to turn on the light or a TV set.

Inside the capsule, as it could be produced in 18 months, the patient would have a synthetic or air-mattress with a modified hospital bedspring adjustment system. If bedsores were a threat, there could be a layer of air that would allow the patient to float above the mattress, eliminating material contact completely.

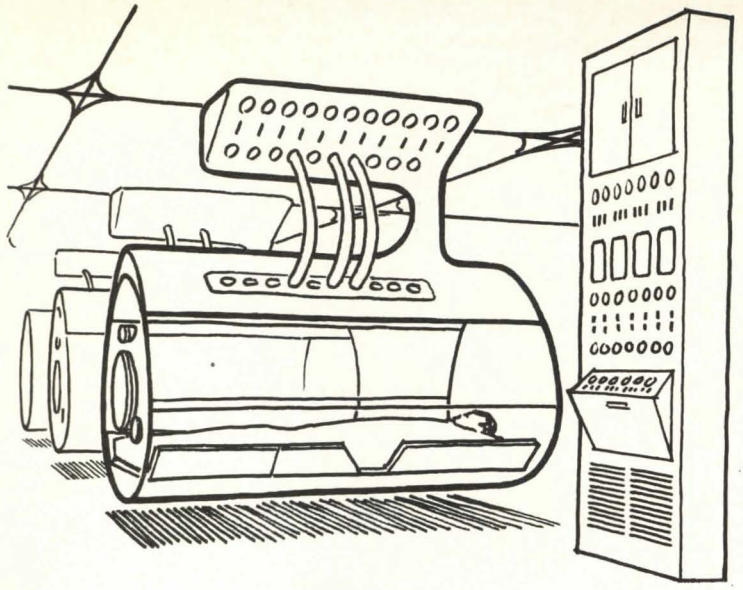
The waste system would be designed to prevent reinfection and aid patient comfort. "No bedpans," says Dubin. Initially, there might be holding tanks and a self-contained incineration system installed underneath the mattress, with access through a trap door in the mattress. Eventually, says Dubin, sewerage could be eliminated through hydrolysis or, like spaceships, the capsule could have a recycling system.

The initial environmental control system would include a centrally controlled, but self-contained air system that could be adjusted to meet the patient's pathological requirements. A heart patient could have a cool, high oxygen-content atmosphere; and an elderly person could have a warm environment. If the criteria are developed, air may also be adjusted for psychological benefit. The system would control temperature, pressure, air quality and content, humidity, filtration, etc. Interior pressure could be increased so that contaminated air could not enter the capsule when its sides are open for the patient to receive treatment.

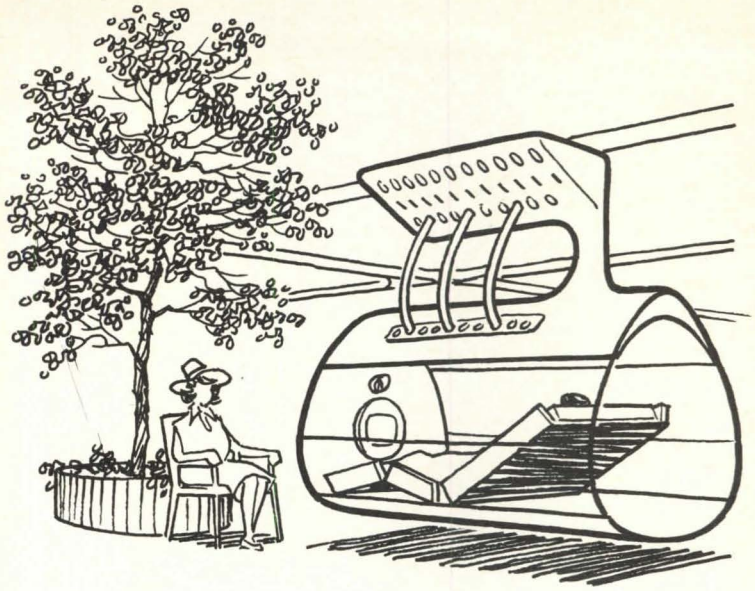
Illumination, still in the development stage as a therapeutic tool, could be adjusted centrally or by the patient. Color may also be used in or around the capsule.

The patient would enjoy some entertainment and psychological amenities in the capsule, as well as the security of having his body functions fully monitored at all times, with treatment available immediately. The capsule would combine bedside table facilities with TV (which can already be produced wafer-thin, so it hangs like a picture), radio and phone. Programmed music may also be used therapeutically.

The capsules will initially move like trolley cars with an overhead electrical monorail system. But eventually, they may have air compression systems, small unit fuel cells (being tested for the space program) or nuclear propulsion. The main question about movement is the effect of acceleration and deceleration on the patient—the



RECOVERY



VISITING

speed in between is not a major limitation.

Communications and monitoring systems would keep the professional staff and the patient in full and constant contact with each other—in effect, private-duty nursing care for everyone. These systems are already well developed, including closed circuit TV, and are used widely in hospitals.

Major questions

The capsule raises many questions and technology is perhaps the least of them. Says Breger: "The first questions people ask concern the psychological effects of the capsule—and cost."

Breger has consulted psychologists and medical experts about the capsule's psychological impact. He says that their consensus is that the capsule may be acceptable because the patient only spends a short time in it—that the patient would probably give the capsule the benefit of the doubt if he were promised that it could get him out of the hospital faster, healthier and cheaper. There would be exceptions, however: Some patients might retreat into the capsule like a womb; others might remain unalterably claustrophobic. Breger and his consultants agree that the system will have to be demonstrated to find out its real psychological limitations.

Breger thinks the architect can play an important role in making the capsule liveable. "Distance between facilities is not a major problem, since the capsule can take the patient to what he needs at virtually any speed. The architect can concentrate on creating a total environment, including landscaping, private views, and facility planning."

Cost? Dubin says cost is hard to estimate accurately because the capsules will ultimately depend on mass-produced components to cut unit costs. But he points out that the capsules will perform to higher standards than a conventional hospital. Donald Rosenberger, a hospital consultant and former administrator for Newark hospitals says, "If we tried to make a conventional hospital match the capsules' performance standards, it would cost more than the capsules and, frankly, I doubt it could be accomplished conventionally at any cost."

Breger adds that the capsules will eliminate building and space requirements for hospital facilities and also construction time and labor costs. "This is money that could be plowed back into the capsule system's development and manufacture." He says there would also be an indirect saving from increased hospital coordination and using the professional staff more efficiently to serve more patients: "Automating just the patient has got to be more economical than automating virtually everything else but. . . ."

An improvement . . .

Breger's real optimism about the capsule system is that it may cause people to change the way they think hospitals must be designed. He and Dubin are sure that the final solution may be quite different than their own "tentative hypothesis to a very serious problem." The important part of their system, they say, is that it centers on moving the patient. "The concept is not only logical, it's inevitable."

Breger and Dubin, along with other medical and design professionals, have worked to bring the system to its present model stage largely on their own time. Breger is looking for financial help, but with qualifications: "I want funding with a promise to implement the system. I don't want to indulge in academic grantsmanship." Breger also hopes to demonstrate the system as a total plan. "Installing the system is one area of a conventional hospital is like installing jet engines on the Wright brothers' plane. Unless the whole plane is completely redesigned, it won't get off the ground."

—Marguerite Villecco

(continued on page 96)



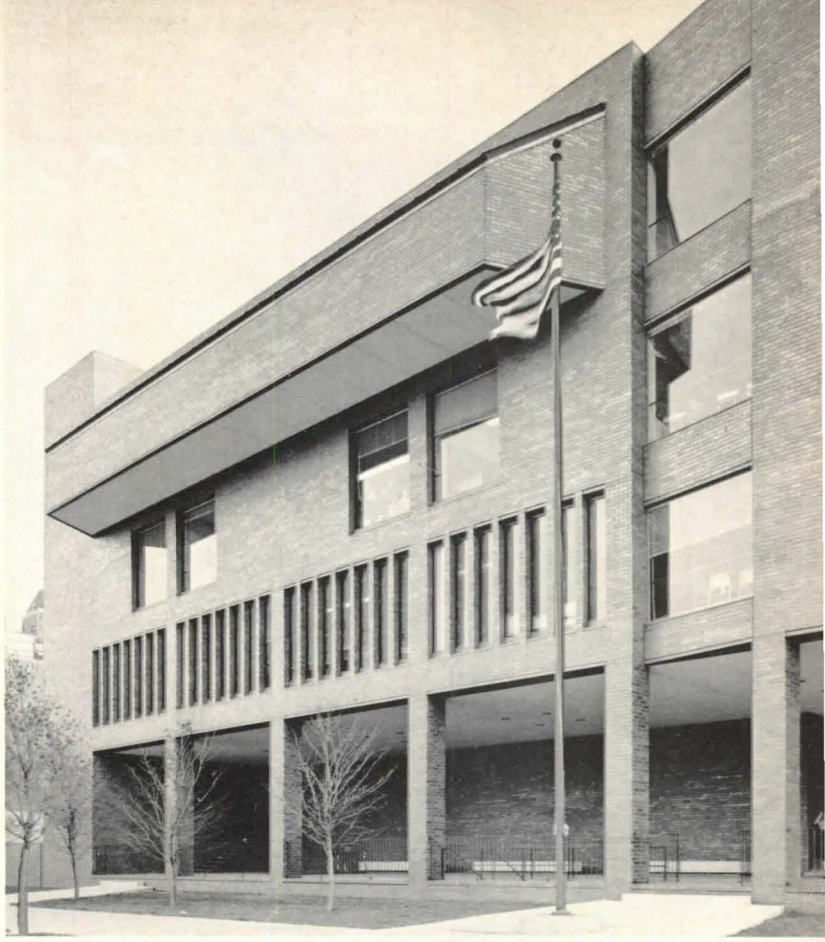
BOX FULL OF SCHOOL

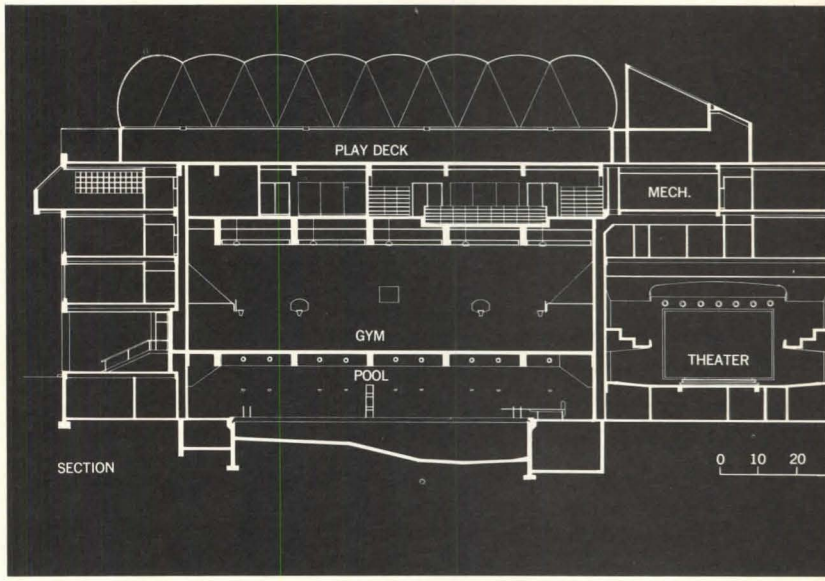
Behind the severe brick walls at the corner of North and Clark is the new home of Chicago's most prestigious private day school, the 82-year-old Latin School. Its spare exterior undoubtedly reflects the attitude of Architect Harry Weese, who has long been inspired by the city's old commercial and industrial structures (May '62 issue). It is also an outward sign that the Latin School is a no-frills building through and through.

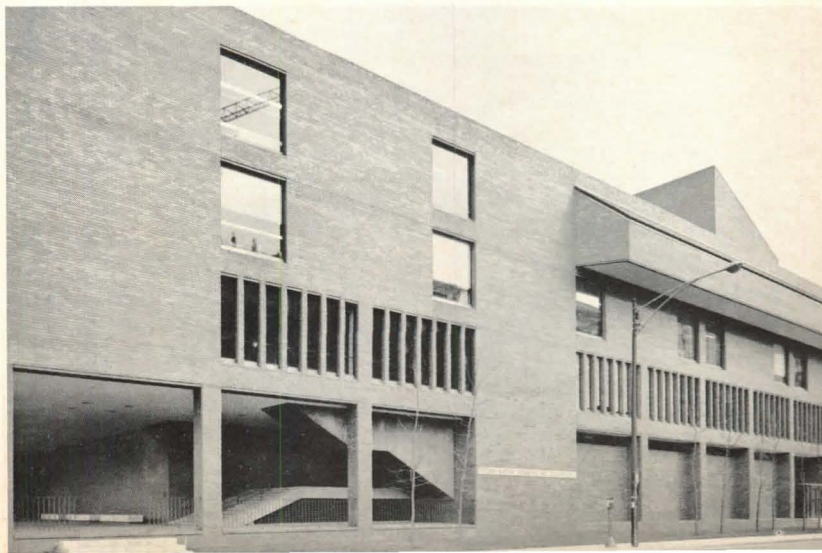
Weese had little leeway in any case for architectural self-indulgence. He had to fit a school for 750 boys and girls—complete with gym, theater, and indoor pool—inside a rectangle only 125 ft. by 200 ft. He has packed all the required spaces into a four-story (plus basement) concrete-framed building, covering virtually the entire site. Only at street level do the walls open up to provide an entrance loggia. At the top floor, specialized classrooms expand out of the basic box as if to recapture volume surrendered at the ground. These extensions not only yield extra floor space; they also provide skylights—large ones, facing north, for the music and art studios and narrow ones for the science labs, which give diffused light without sacrifice of useful wall space. It is probably no coincidence that these projections also give the building a more interesting profile.

Weese initially planned to reclaim the entire area of the roof as a play deck enclosed by a translucent, air-supported plastic canopy (section, right). But despite careful research to support the proposal, it was not considered safe by the Chicago Building Department. Until the canopy (or an acceptable substitute) goes up, the roof is not usable for tennis or other games.

In the deliberately plain walls of the school, attention is focused on the fine quality of the orange-brown iron-spot brick. Details at openings are minimal in appearance and carefully worked out technically. Fixed window glass is set directly into the wall, without frames. Lintels and sills are clad with lead-coated copper, which will not require painting (thus eliminating the risk of repainting in an obtrusive color). On the longer spans above the street-level loggia, the steel lintels are protected by insulation behind the copper cladding to prevent ex-







The Latin School of Chicago fills a small corner site on the frontier between a tract of highrise redevelopment and the dense, richly varied Near North Side neighborhood. The narrow end of the school (top right) faces a lakefront park, and the long facade (bottom right) faces a main artery leading north from the Loop. Behind both facades are rows of classrooms and offices, which surround a core of large common spaces (section, right). Weese's effort to simplify details is apparent in the brick walls (left), and reaches an almost primitive directness in the concrete entrance steps, which are separated from the walls to begin with so that they will not crack away later.

cessive thermal expansion, which would crack the brickwork.

In plan, the Latin School is laid out around a core of large spaces with fixed volume requirements—the gym, the pool, and the theater. At street level, all the remaining area is given over to circulation—indoor and outdoor. A stair under the loggia gives direct access to the basement for athletic classes using playing fields in the park across the street, as well as students from the lower school (housed in another building nearby) who come to the pool.

Classrooms are concentrated on the top three floors, to keep the trip between classes within reasonable limits. On the top floor are a cafeteria and a library, sharing an open deck with a sidelong view of the park and Lake Michigan.

The large lobby spaces on the lower floors are meant as informal gathering places—a kind of indoor campus. Wherever possible, the corridors have been expanded—in triangular niches at classroom doors and in window-seat alcoves at the ends of corridors.

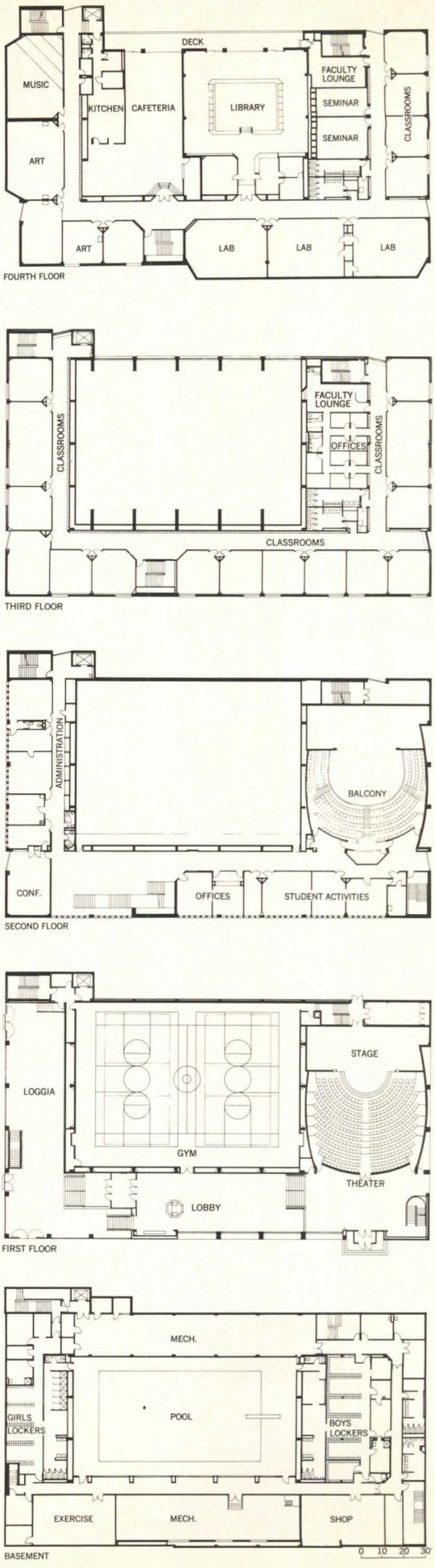
Details of the interior are as straightforward as those outside. A recurring element throughout is the air supply nozzle—a conical projection of black-painted sheet steel which appears on the upper walls of virtually every room. High-velocity air from these nozzles is thrown effectively across all spaces—even broad, low ones such as the library. This device saves on horizontal ductwork, which is in a band above the corridors.

Inside and outside the Latin School, all traces of elaboration or monumentality have been avoided, as if unacceptable for a private school in Chicago today. Instead of comforting the Latin School students with sensuous forms and embellishments, Weese has given them refined details on which to sharpen their critical perception.

FACTS AND FIGURES

The Latin School of Chicago, Chicago, Ill. Architects: Harry Weese & Associates (Ben Weese, project architect). Engineers: The Engineers Collaborative (structural), S. R. Lewis & Associates (mechanical). Consultants: Lustig & Associates (theater), Design Unit (interiors). General contractor: Power Construction Co. Building area: 95,570 sq. ft. Cost: $2,957,000 (including landscaping, furnishings, lab and kitchen equipment).

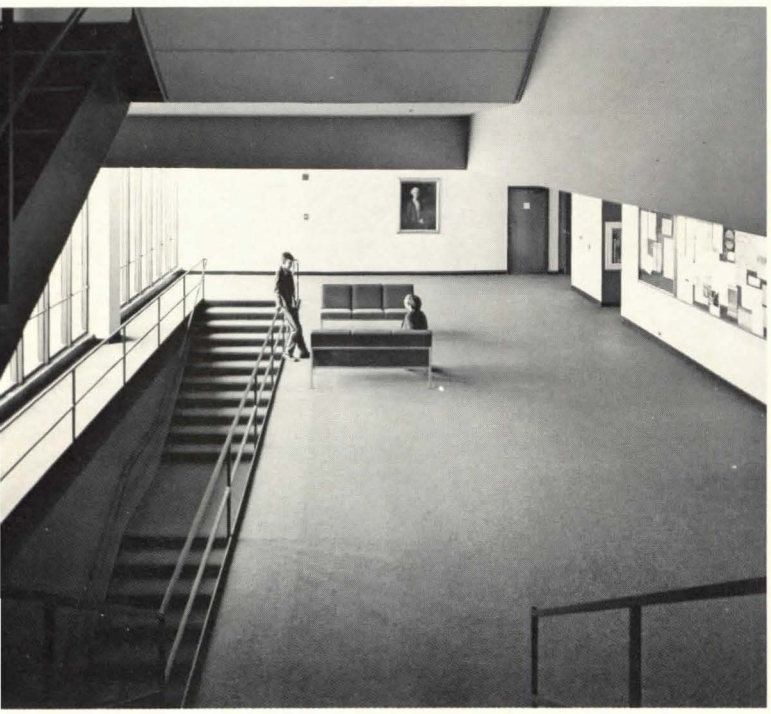
PHOTOGRAPHS: Balthazar Korab.



The four-story-and-basement stack of teaching facilities is densely packed within the rectangular outline of the site (plans, right), with classrooms limited to the top three floors. Special classrooms such as the music studio (top left photo) have skylighted projections beyond the building facade. The top-floor library (top right) has a sunken area within the depth of the beams spanning the gym below it. Lobby space on the second floor (middle left) is meant for informal mingling, but still lacks appropriate furnishings. On this level is the balcony of the 450-seat theater (middle right). The street level theater lobby (bottom left) is separated from the school and gym lobby only by a change in level. A freestanding stair in this lobby—its spare steel details emphasized with white paint—leads up to the theater balcony and down to basement lockers and the pool (bottom right).












10 FEET DEEP

ZONING

THE NEW BATTLEGROUND

BY CLARENCE FUNNYE

Somewhere in the streets of Union City, Calif., a young American Indian woman stared at the spanking new Levitt-type single-family homes of the newly-arrived white citizens. "They don't use the U. S. cavalry anymore . . . they don't have to. They just change the zoning ordinance and we can't live here anymore. And it's all nice and legal."

The young Indian, wife of a Mexican-American agricultural worker, was a native of Union City, a town half-way between Oakland and San Jose. Recent demands of the rapidly growing San Francisco Bay area had brought industrialization, the inevitable suburbs and resident whites in large numbers to this once primarily agricultural town. Mexican-Americans, who were 60 per cent of the population as late as 1960, found their homes surrounded by more and more tract development, and the big squeeze-out began. To forestall complete displacement, an organization of Mexican-Americans called SASSO (Southern Alameda Spanish Speaking Organization) sought to build 280 garden-style apartment units on approximately 25 acres on which they had obtained an option. This was in December 1968 and the City Council, then controlled by Mexican-Americans, granted rezoning permission.

However, white residents (who were now over 50 per cent of the population) staged the traditional referendum—the first ever held in Union City—and overturned the council's zoning decision. Thus with the economics of single-family home owning being what it is, the low income Mexican-Americans will be forced away from their old homes and the new jobs. Unless. . . . Unless the law suit brought by SASSO and NCDH (The National Committee Against Discrimination in Housing) is won on appeal.

The Indian woman is right. Cavalry or not, the traditional land use practices of land confiscation and/or racial restriction still thrive in "the land of the free, the home of the brave." Her family's plight is not unique. At least two formerly all-black communities in the county of St. Louis, one of which is said to date back to the days when Quaker missionaries used parts of the area to resettle escaped slaves, are being systematically shrunk by renewal and upzoning and the residents forced into center city ghettos of St. Louis. Even this is not unique: hundreds of suburban mini-ghettos (usually former servants' quarters) are being "improved" out of existence as suburbanization increases and land values rise.

This aspect of zoning (sometimes called upzoning) is rarely discussed, largely because it is not as prevalent as exclusionary zoning. Exclusionary zoning is land control designed to keep out undesirables, whether industry or people—but mainly people. The undesirables are mostly black, but also include Mexican-Americans and Indians as in Union City, and Puerto Ricans as in Long Island, N. Y., or Hartford, Conn. Poor people, of course, are always unwelcome. The problem is universal and the effects literally tragic, even catastrophic. A brief review is illuminating.

Zoning for the "universal good"

Zoning has had a pretty consistent history beginning on July 25, 1916, in New York City when the Fifth Avenue Association championed the organization of The Save New York Movement. The Association wanted only to ensure the status of Fifth Avenue by keeping out peddlers and undesirable merchants, but shrewdly recognized that legislative chances were improved by cloaking their proposals in terms of motherhood, the flag (at least the city flag) and the "universal good," which, while never explained was always accepted. Contemporary

Dr. Funnyé is principal in the firm of Funnyé Associates, city planners and architectural engineers, in Brooklyn, N. Y. He is formerly Director of Planning for the National Committee Against Discrimination in Housing. This article is from a chapter in his forthcoming book on racism and city planning in America.

editorial writers hailed the law as signaling a new and finer age for urban civilization, and within a few years civic-minded merchants and their allies in dozens of American cities were pushing for zoning ordinances to "ensure the health, security and general welfare," etc.

Typically, zoning laws control (or permit the control of) land use, including the type, character, quality and use of structures, their location and juxtaposition, and all supporting facilities such as streets, railroads and sewage disposal systems. The controls are usually administered by a zoning commission, often with a separate Board of Appeals. The merchants and their allies —the realtors, builders and big land holders—quickly scrambled to volunteer their services to the cities by "accepting" appointments to these boards. Scandals involving land manipulation for profit were more or less commonplace until the late thirties. The decrease in zoning scandals was due more to sophisticated stand-offs between competing interests than to any increase in virtue or sense of public duty on the part of zoning board members. In any case, all the important cities were well carved up by the start of World War II.

Suburbs turn to zoning

After the war, the previously slow trend to the suburbs took on epidemic dimensions. The Federal Government jumped in with both feet, building multilane highways to hitherto unreachable (but highly buildable) farm lands, and the VA and FHA passed out billions of dollars in guaranteed loans to returning white veterans and (in the case of the FHA) to millions of non-veteran whites. The great suburban rush was on. On Long Island where web-footed fowl once wobbled peacefully . . . around mid-western cities where corn grew as far as the eye could see . . . around eastern cities where the country was a short car ride away on any Sunday afternoon . . . or around western cities (where Mexican-Americans and some Indians still eked out a living) . . . almost overnight, came the *plump, plump* of the pre-packaged American dream on two, one or half-acre lots.

Meanwhile, back in the cities, things got worse—the flight of the middle class eroded the tax base. There were no government programs for new city housing, while new expressways partially decimated many older housing areas (expressways which served only the former residents). And finally, the astronomical influx of largely rural blacks from the declining southern farm country —crowding onto the urban stepping stones to that mythical good life. Marching lightly behind the previous waves to the suburbs, they found, however, that things were not quite so simple.

At least one well-respected regional planning association, sensing the big push, had gone about the suburbs crying: "The city is coming! The city is coming! Zone up! Zone up!" And they did. Zoning ordinances sprang up like sentries around a threatened fortress, and by 1965 center city blacks, Puerto Ricans, poor whites and even some middle class whites who had unfortunately delayed their departure, found the suburbs zoned up tight. A substitute for the cavalry had indeed been found.

The mechanism is deceptively simple. The citizens inside the fortress simply declare that "in the interest of community, health, welfare, and general security" each new applicant for admission must be required to purchase and build one single-family home on one or three or ten acres of land. Or they may simply declare that garden apartments or row houses are *ipso facto* detrimental and bar them altogether, even if surrounded by 100 acres of open land. There are no standards to govern such zoning. None are required. Since few poor members of the urban residential community can afford a single-family house, and since row houses, etc., are excluded, it follows that few alert suburbs are troubled by "large numbers of undesirables" crowding their parks, schools, streets and welfare rolls, and thereby increasing the cost of services and taxes. Some planners—a few serious ones—actually accept this as a reason for exclusionary zoning, and suggest that revitalized tax programs would cause the suburbs to lower their barriers to row houses or garden apartments and hence, by implication, to the urban poor.

Suburbia: The three-S theory

This "fiscal cure theory" may have limited validity in a few cases, but any planner who hopes to understand the psyche of the American suburb must first appreciate and understand its foundations, which rest on a very simple though seldom acknowledged credo: namely, sex, status and salvation. The order varies, depending on the age and psychic (not to mention physical) strength of the participants, but the ingredients are constant.

Sex is a very prominent constant. If one is to believe even half the exposés on sex in the suburbs, the impression is of some still unresolved problems, at least insofar as practices depart from the mythical (and "accepted") norm—one thinks of the allegations concerning key parties, wife-swapping and freelance (on the side) prostitution. Psychological and sociological discussion of these phenomena are beyond the scope of this article, but scientific men indicate that such departures from the norm are only acceptable with one's social peers and that to the lower classes (and racial minorities) a strict front must be kept. Such fronts are better kept if the environment excludes inferiors.

Dick Bellman, NCDH Staff Counsel, in his brief appealing the ruling on the Union City zoning case, cited quotes from whites in the zoning referendum campaign telling why they opposed the multi-family housing. One quote: ". . . the project would consist of 75 per cent black and 25 per cent Mexican-American residents, and black boys would be chasing after young white girls." Enlightened liberal rhetoric notwithstanding, America has yet to resolve even its basic sexual hangups about blacks. It is extremely unlikely that fiscal relief to communities will relax discriminatory zoning practices.

The second "S" in the "three-S" theory of modern exclusionary zoning is status. Suburbs are where people go who have made it or who can pretend to have made it. It is in the suburbs that the accouterments of monetary attainment can be made most visible. The car is always parked out in front. The house stands freely. Economics and social customs operate to ensure that one's neighbor, if he is not a gangster or merchant or slumlord (all of which are equally acceptable in most suburbs) is probably a college graduate or college dropout. This is status.

Curiously, the black man remains for whites a kind of inverse status symbol. Thus to a status-seeking suburb (there are none that are not) the further away blacks can be kept, either physically because of distance, or economically because of income, the higher the status of the keepers. This relates solely to skin and is not modified as the blacks acquire the normal symbols of white status—money or recognition. Witness the barring of Ralph Bunche's son from a Forest Hills [N.Y.] tennis club. There was no great outpouring of protest from other members. They secretly rather enjoyed this reaffirmation of their status. Thus they can read a *New York Times* editorial tut-tutting about how U. N. Undersecretary, Nobel Prize winner, Dr. Ralph Bunche, internationally acclaimed statesman, was snubbed by their relatively modest club and gloat: "He can't get in 'cause he's black. I can, 'cause I'm white." Thus skin color or the lack of it is the final status insurance. This is not likely to be corrected by either appeals to morality or fiscal zoning.

The final "S" is salvation from the cares, insecurity and pace of city life. Cynical critics

notwithstanding, the suburban slice of life is as close as most suburban dwellers will ever get to the myth of the American promise—to the individuality of land ownership, to the independence of the New England founding father image, or indeed to the soil itself. To the extent that the suburbs provide a semblance of these blessings, to that extent is the surburbanite saved from all evils (some real, some unreal) of the city. This is salvation . . . and while it can be argued by optimists that blacks do not detract from such salvation, blacks are mentally equated with the "bad things" from which the suburbanites have been saved. Reassurances to "the saved" about cluster zoning and common open space are not likely to get modifications in suburban exclusionary zoning.

The "three-S" theory is not easy to accept. It is common to read whole volumes by urban planning professionals or university-based planning theorists who go on for pages about "linked decision agent models" or "producer models" or "rural activity patterns" or "reactive fiscal zoning" in explanation of suburban exclusionary zoning, without once mentioning even one of the "S's." This is altogether understandable. These professions and research theorists are almost always white, and while they don't advertise the fact, most are residents of the suburbs and, like most Americans, have yet to come to terms with the city as a desirable fact of American Life. With the possible exception of a tiny segment of the planning community (Ernest Erber of NCDH, Paul Davidoff of Suburban Action and Ron Schiffman of Pratt Center are some that come to mind), most white planners don't appreciate the dimensions of the zoning problem.

Facts vs. rhetoric

In December 1968 the Kaiser Commission stated that "the location of one's place of residence determines the accessibility and quality of many everyday advantages taken for granted by the mainstream of American society. Among these commonplace advantages are public educational facilities for a family's children, adequate police and fire protection, and a decent surrounding environment. In any case, a family should have the choice of living as close as economically possible to the breadwinner's place of employment. It makes little sense for federally subsidized housing to be concentrated in and around the central cities' slums where social and environmental disadvantages can negate the uplifting qualities of decent housing."

The Commission's statement was based on an appreciation of the realities of what one scholar called the suburban shift, even though it is contrary to what blacks are supposed to want. We have, for example, been told that what blacks want is to build up their own areas, avoid dispersing their political power, not move to the suburbs, but have the jobs move into the ghetto. But then, this is the age of rhetoric that presents the non-answer as if it were the wisdom of Solomon.

Without speaking to the short-term political motivation of these clichés, one could effectively dispose of them by a few verifiable facts.

Fact one: The central cities have been losing jobs at an increased rate, for what amounts to a net loss in jobs. The Capital of Black America, New York City, had a net loss of an estimated 150,000 manufacturing and service jobs in the last quarter century. From 1951 to 1965 the region (New York tri-state area) gained 880,000 jobs while the city gained 111,000 net new jobs, and these were all in higher skilled office and commercial areas.

Fact two: Space is not available in central city areas for modern manufacturing needs.

Fact three: In the last quarter century, 75 to 85 per cent of the nation's central city area jobs were created in the suburbs.

Fact four: The job shifts are non-reversible. The suburbs are where the action is and will be. Worker-job reconnectors such as job retraining and the various transportation schemes devised to let inner-city workers get new jobs in the city or follow their jobs to the suburbs are not working, and are not workable.

Fact five: Non-access to suburban housing because of zoning or other restrictions means non-access to the suburban jobs. Since these will be the only jobs for which the present generation of black workers can now qualify, non-access to such jobs means no money. Consequently, one can expect increasing dependence on the spirit-killing city welfare programs.

The vast amount of motion surrounding the so-called "jobs in the ghetto" plan is no more than circular. Training blacks to conduct a service-connected industry in the ghetto is not unlike passing out travel folders to chain-gang lifers, except worse. At least the lifers would know it was all a joke.

But perhaps the most ominous and cruel joke of all in the zoning game is not even funny to a devil. NCDH job and housing studies suggest that there is, in fact, a time limit within which blacks can follow their jobs to the suburbs, and that the inability of suburban manufacturers to get workers will actually cause a speed-up in the automation of jobs. The "sudden death time limit" varies with jobs, but comes out close to three years for the average moderate-skill manufacturing job. In other words, the typical manufacturer who finds he can double his profits by doubling his work force will automate at greater cost, rather than forego profits by holding manual jobs open more than three years.

The new struggle

The reality is that the civil rights forces which were slow to appreciate the connection between zoning and urban opportunity are trying to catch up. Major forces are involved; they include the big hard-pressed land developers and builders, acting with the traditional civil rights forces or at least the remnants thereof. These latter are led by NCDH (the National Committee Against Discrimination in Housing, a relatively young but generally respected national organization, 20 years old, with headquarters in New York City), and include the new Suburban Action Institute, a Neil Gold—Paul Davidoff operation working in suburbia with white people of good will, and last but not least, the old and venerable NAACP.

The NAACP opened its zoning fight with an announcement of intent to bring a lawsuit in Oyster Bay, Long Island, where the township refused to rezone 20 per cent of its land to permit low income housing. The NAACP's reputation for winning cases in civil rights is almost legendary—and they're going to need all of that reputation in their new ventures. On the same front doing a lot of talking, but still waiting to fire their first shot, are Gold and Davidoff, advocate planners of the old school who plan to test the willingness of the courts to strike down exclusionary zoning on the basis of denial of related opportunity (as in the case of center city residents who are denied suburban jobs because of unavailable housing, when such unavailability is due to restrictive or exclusionary zoning).

The NCDH has at least three suits already under way. In addition to the Union City, California case mentioned above, NCDH has brought suits in such unlikely places as Lawton, Okla., and Montclair, N.J. NCDH seems more likely than the others to write new law (via the U. S. Supreme Court) mainly because of its brilliant Counsel Sol Rabkin and aggressive Staff Counsel Dick Bellman.

The developers and builders, many holding suburban land rendered unbuildable because of snob zoning, are joining forces with civil rights organizations and launching publicity campaigns to educate the public on the real cost of zoning for sprawl. In many cases developers have gone directly into court.

In February 1970, the Pennsylvania Supreme Court ruled against Nether Providence township, saying the zoning laws were unconstitutional because of apartment exclusion. In a very significant decision, the court held that "the question posed is whether the township can stand in the way of the natural forces which send our growing population into hitherto undeveloped areas in search of a comfortable place to live. We have concluded not. A zoning ordinance whose primary purpose is to prevent the entrance of newcomers in order to avoid future burdens, economic and otherwise, upon the administration of public services and facilities cannot be held valid." The court went on to say "that (the township) cannot have a zoning scheme that makes no reasonable provision for apartment uses. It is not true that the logical result of our holding today is that a municipality must provide for all types of land use. This case deals with the right of people to live on land, a very different problem than whether (the township) must allow certain industrial uses within its borders."

The possibilities for success

The prognosis is not yet fully clear, but if the courts don't get any worse, there might be some hope of cracking the suburban noose. There is of course an assumption that the Supreme Court remains relatively free of politics and is of high quality.

There are special implications for direct spin-offs to urban opportunity. It is only one small step between holding that a suburban community cannot zone blacks away from jobs via the housing route, and holding that the city of Dallas cannot wipe out a black residential area for re-use as a football parking lot or that the city of Nashville cannot obliterate a hundred black homes to increase the transportation ease and comfort of suburbanites working in all-white center city industrial enclaves.

These examples are all quite real and, not unlike snob zoning or exclusionary zoning, have for years been ignored by the planning and design professionals. Indeed planners in past years have actually been guilty of proposing today's problems (recall that highly respected regional planning association and its Paul Revere-like ride through the suburbs). For years they pretended that the zoning process was based on non-political planning considerations—purely objective, for the common good, etc. It was not until speculative land holders and builders began to groan, that planners took a second look at the real use of zoning. Even then their main concern was for the "untidiness of suburban sprawl."

Only very recently, with civil rights groups launching coordinated legal attacks on zoning, has the planning profession, led by the *AIP Journal*, shown a renewed interest in additional implications of zoning. Thus at the start of the sublime seventies, the country is finally witnessing the first serious attempt to break the walls around central cities.

What are the prospects for success and a better urban environment? There are many axes to grind in these first attacks: the center city dweller seeking housing near jobs, the builder seeking land to build, the family wanting non-ghetto space and quiet, the welfare agencies wanting a more even distribution of "dependent" populations, the city Chamber of Commerce wanting an improved image of the city (recall the inverse status theory) to enhance its competitive position and protect downtown investments. Moreover the relationship between suburban zoning and continued viability of the American City is slowly acquiring the status of an accepted national truth—not unlike the goodness of baseball and motherhood. While few are prepared to define viability, except in personal self-interest terms, enough people and institutions are becoming committed to this "truth" to constitute a significant momentum. This is precisely the kind of momentum necessary to create a climate in which judges can feel secure in ruling against local zoning officials, something which courts have traditionally avoided.

The ruling of the Pennsylvania Supreme Court, mentioned above (the case of Girsh vs. Nether Providence Township Board of Adjustment) is unusual and embodies all of the basic concerns of the new urbanists and avant garde planners. However, that decision was split—a mere 4 to 3 in favor. The final decision must still come from the U. S. Supreme Court, and there is some question as to whether that court will long have the enlightened balance of legal and social sensitivity. There is very disturbing evidence that the American legal profession is quite prepared to acquiesce in the appointment of judges who excel in mediocrity and tunnel-vision conservatism. The first zoning cases from the new wave of attacks will not reach the high court until the Fall or Winter of 1970 and a negative ruling would effectively eliminate any hope for legal relief.

Even if the Supreme Court survives present efforts at dilution, each proponent of equal opportunity zoning is still going to have to fight a locality-by-locality battle for each victory. This is time-consuming and frustrating. Such hope as there is, in the present generation of zoning suits, lies in the possibility of their having educational and social spin-offs.

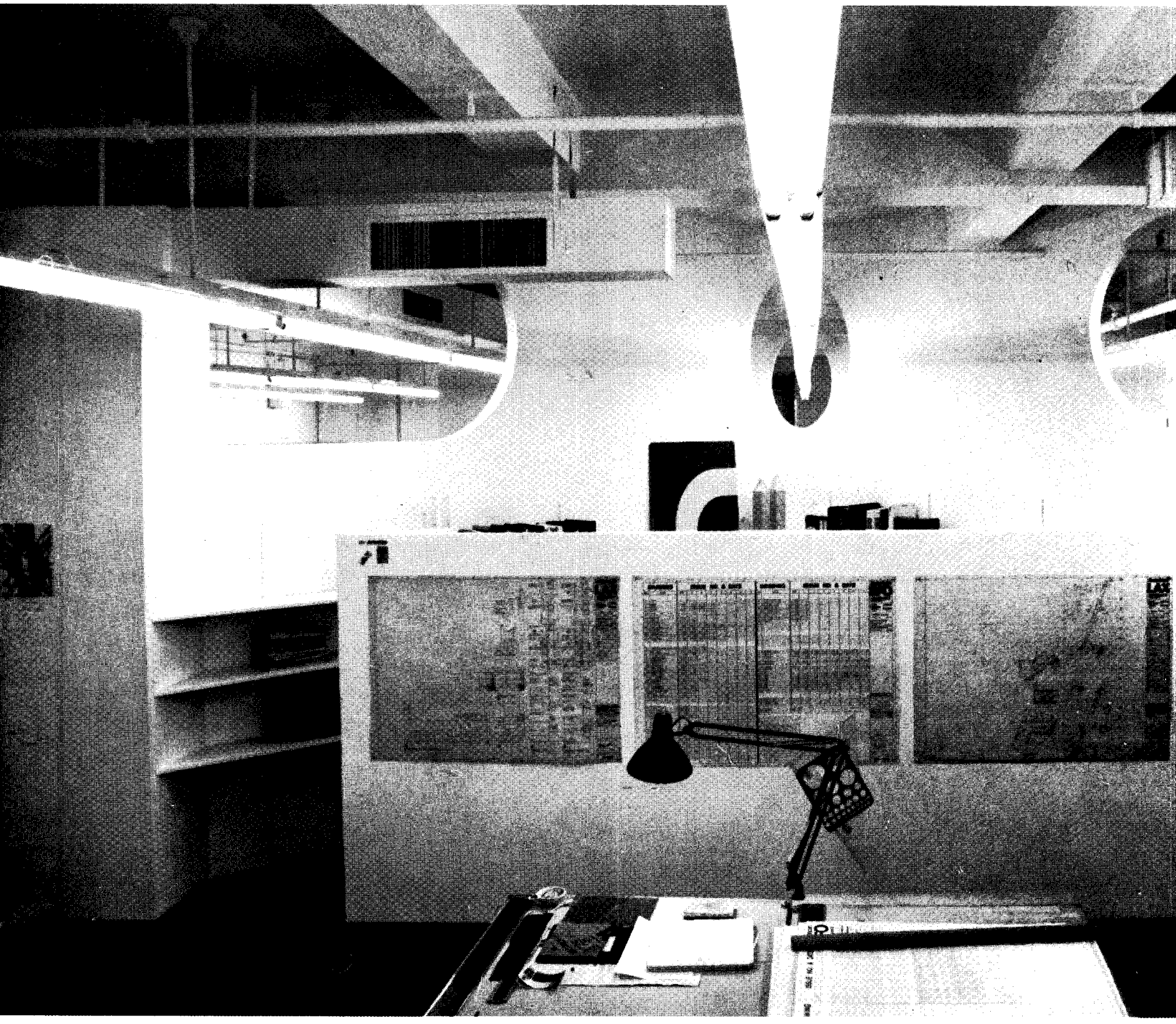
Three spin-offs seem possible: 1) The climate in state legislatures may be modified to reflect the courts' concerns for the social aspects of zoning; 2) States may be declared liable for the discrimination of their creatures, and while most state legislators are no more enlightened than individual suburban communities, they are more vulnerable to the collective pressures of the new momentum. Such pressures could lead to state-wide zoning standards ensuring non-discriminatory zoning; 3) The Federal Government may be encouraged to include anti-exclusionary zoning regulations in its comprehensive planning requirements and maybe even finance the building of housing which ignores existing zoning where such is deemed discriminatory.

Collectively, these spin-offs coupled with the specific court declarations could constitute a very positive momentum. The good will of civil rights and housing opportunity organizations (NAACP and NCDH) and the new *ad hoc* liberal activist groups (Suburban Action Institute) will be catalytic, but final success in breaking the zoning noose will be the result of social and economic forces riding on the moral wave.

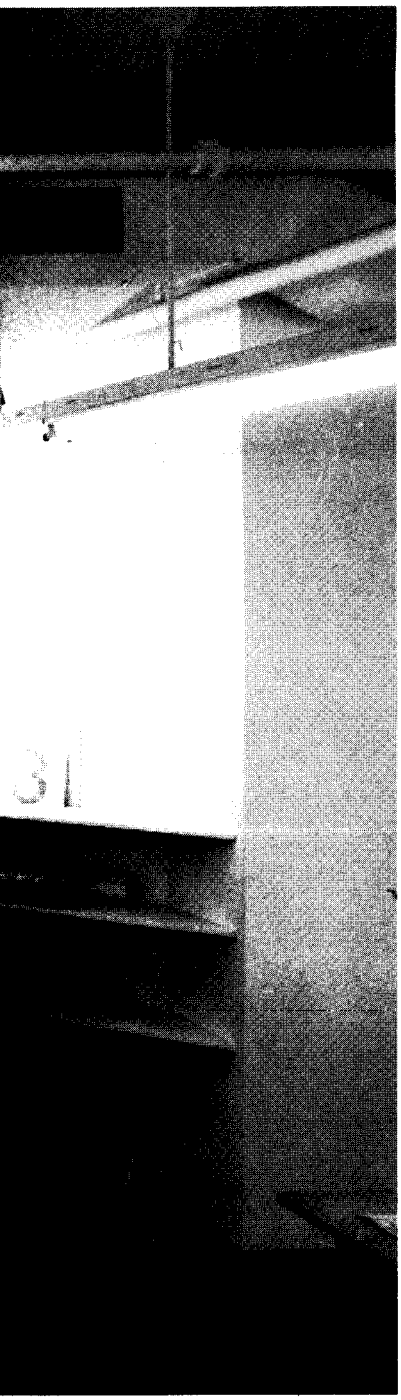
Joining the fight

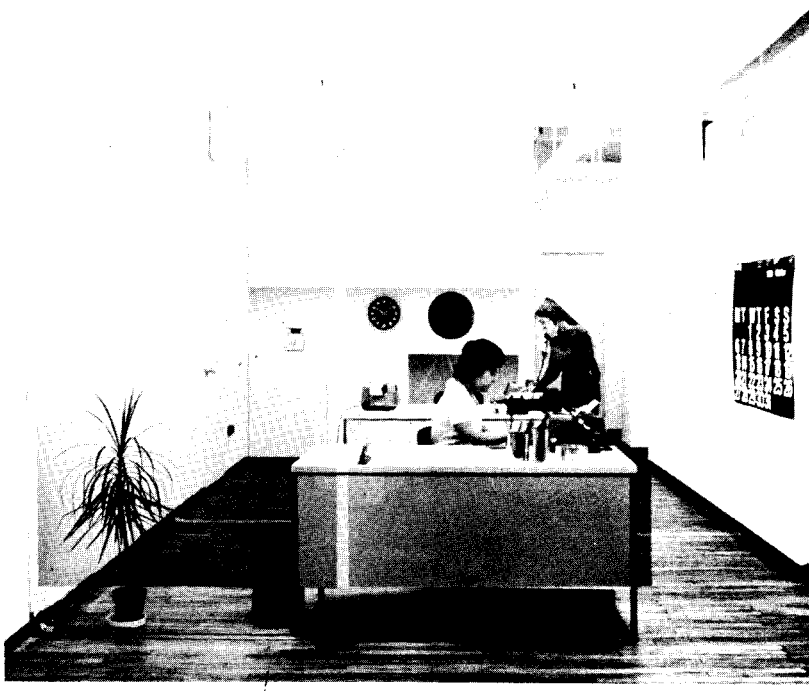
The wave will include many blacks and many poor people, but more significantly it will include mostly middle income whites who find themselves locked in by anti-people zoning. The fight will be joined by whites who wake up to find the joys of the city diminished and the remaining open countryside designated as suburban regional parks for use by residents only, and by whites who see the tie-in between extortionist city rents and four- and five-acre zoning just minutes away, by new suburban factory owners who find needed workers (and profits) kept away by zoning, and finally by pro-city business people who are not yet prepared to see their cities turn into places just for the poor and powerless.

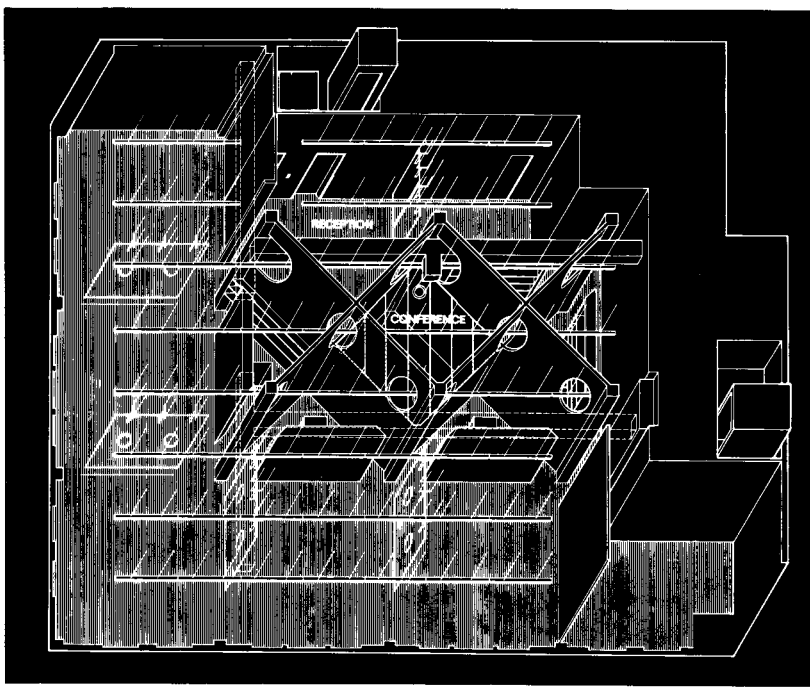
There is significant evidence that the Urban Coalition's work is beginning to reach some powerful ears. Vice-President Agnew recently made the front pages with an extraordinary speech deploring the ills of suburban exclusionary zoning. Neil Gold and Paul Davidoff of Suburban Action (which got its original cues from NCDH) immediately —although gently—charged Agnew with plagiarism. Zoning, like politics and marriage, makes strange bedfellows—and the Lord moves in mysterious ways his wonders to perform.



HAVING FUN WITH HARSH REALITY







A view from the drafting area (left) shows ducts and lighting fixtures left by previous occupants passing through the diagonal partitions of the central bays (axonometric, right). The reception area is separated from the secretarial space (top right) by sheets of tinted acrylic suspended from hangers made of nylon filament and clear acrylic tubing, which are attached to clear plastic dowels running through the tinted sheets. From a distance, ironically, only the holes the dowels pass through are visible.

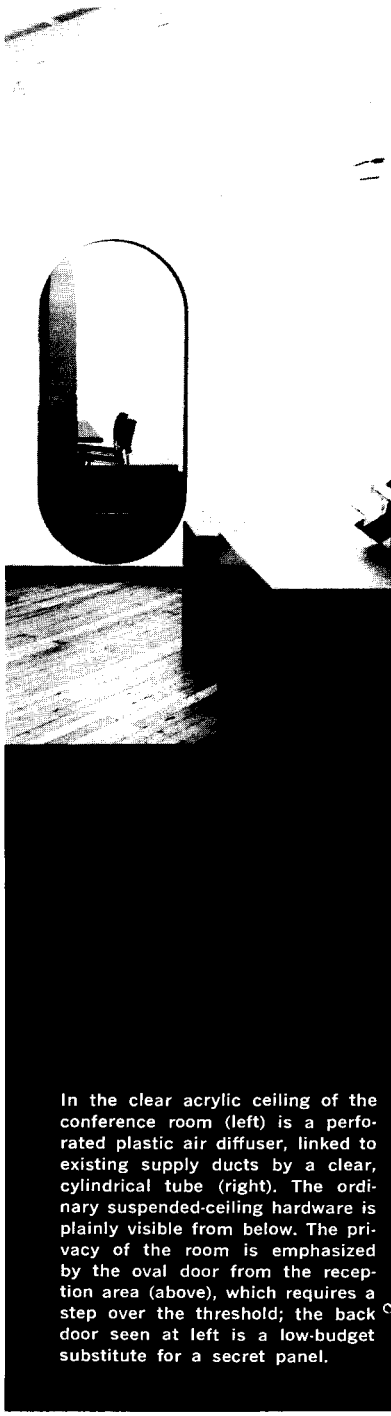
Air conditioning ducts snaking across exposed beams and fluorescent strips darting through circular holes may look like architectural pop, and to some extent they are. But the ducts and lighting are no put-on; they were there when Architects Conklin & Rossant took over another floor at their New York location for a joint venture office with Engineers Zetlin, DeSimone, Chaplin & Associates.

The office designed around these commonplace fixtures is a lesson in living with things you cannot afford to replace. The architects have pointedly worked around these impediments and turned the process to visual advantage. There is no adornment —nothing but circular holes in white-painted gypsum board partitions. The very plainness of the surfaces focuses attention on the spatial relations—on the oblique intersections of the partition and lighting patterns, on the constant margin of separation between them, and on the fragmented patterns seen through these gaps.

Another visually intriguing feature of the office design is the use of clear plastic sheet to divide space. The band of drafting space between the windows and the first row of columns is interrupted only by suspended sheets of clear acrylic between five-man alcoves. Visually, these baffles hardly interrupt the space at all—except for some ghost reflections; acoustically, they are remarkably effective in isolating conversation within the alcoves. Other acrylic sheets—tinted blue for visibility —hang between the reception space and the administrative area (photo above).

In the middle of the space are





In the clear acrylic ceiling of the conference room (left) is a perforated plastic air diffuser, linked to existing supply ducts by a clear, cylindrical tube (right). The ordinary suspended-ceiling hardware is plainly visible from below. The privacy of the room is emphasized by the oval door from the reception area (above), which requires a step over the threshold; the back door seen at left is a low-budget substitute for a secret panel.

the more private spaces—a library and semi-private areas for supervisory personnel. At the very center is a conference room, closed off both visually and acoustically.

For complete privacy, the conference room needed a ceiling of its own. But a completely opaque enclosure, low enough to clear the suspended ducts and lighting, would have been grim, to say the least. The answer, of course, was a transparent ceiling.

Clear acrylic sheet has been supported on standard suspended-ceiling hardware, painted white. "For the first time," says Rossant, "you can look up and see what is above all those suspended ceilings."

To supply air for the conference room, a clear cylindrical duct (photo opposite) has been brought down from an existing metal duct. Looking up through its perforated plastic diffuser (top left), you can see the galvanized metal interior of the old duct. Return air escapes through a similar plastic grille, without a duct.

Aside from this display of what goes on above the typical ceiling, the conference room demonstrates another interesting point: even in these days of electronic sound and sophisticated projection systems, we still find it mysterious—even a bit unsettling—to find a room that is acoustically very intimate, yet visually quite expansive.

—John Morris Dixon

FACTS AND FIGURES
Joint Venture Offices (Zetlin, DeSimone, Chaplin & Associates/Conklin & Rossant), New York, N. Y. Architects: Conklin & Rossant. General contractor: George A. Murray Co. Building area: 6,000 sq. ft. Cost: $26,000.
PHOTOGRAPHS: Deidi von Schaewen.



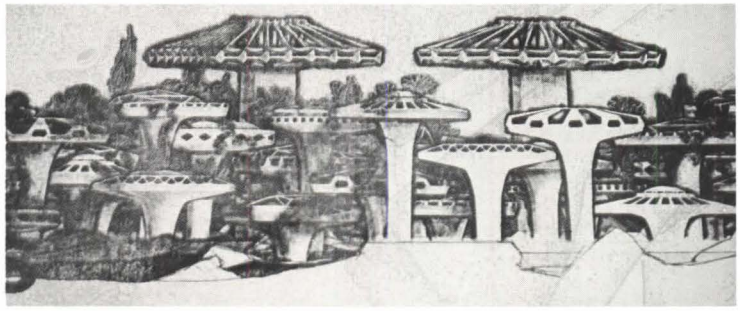
THE ARCOLOGY OF PAOLO SOLERI

BY SIBYL MOHOLY-NAGY

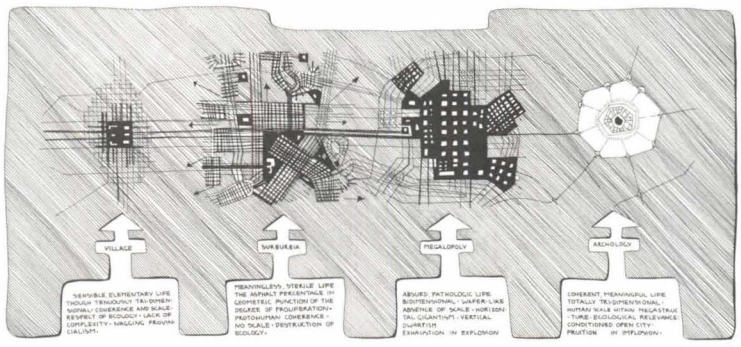
Ten years ago the first sketches appeared in exhibitions and publications of an organic settlement in the desert. Paolo Soleri's *Mesa City* **1** rose like gigantic plants from the landscape, parts sunk into canyons, and residential "villages" sprouting like mushrooms from vertical communication and utility stems. Although Soleri today denounces the linear expansion and structural separation of his first Utopia, it still forms the introductory part of a large exhibition of his subsequent work in the Corcoran Gallery in Washington which closed on April 6.

Mesa City serves as a useful point of reference for anyone willing to follow Soleri's rather paradoxical development. He joined Frank Lloyd Wright's Taliesin Fellowship in 1947 after completing his architectural training in an Italy beset by the hardships of war and poverty. "Unable to work on other people's design," as he wrote, he left Taliesin in 1949, probably not aware at that point of disillusionment that Wright had marked him for life. After a few years back in Italy, where he designed a strangely Gaudiesque ceramics factory in the south, he returned to Arizona where he has lived and worked ever since.

His range of competence is extraordinary. His bridge design belongs to the boldest and structurally most advanced of this century. His ceramic windbells, poetic products of the purest arts and crafts approach, sell in gift shops. Apprentices, enrolled in the Cosanti Foundation, have built a continuous workshop area of womb houses, cast in a highly original earth-mould tech-



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nique; and 30 projects for new cities have been sketched on 20-ft.-long scrolls, and rendered graphically in a gigantic book: *Arcology—The City in the Image of Man* (MIT Press) that measures 4 ft. when opened and demands the skill of a snake charmer in handling.

The basic concept of his planning revolution is deceptively simple and familiar. Mankind left the villages, founded cities which became **2** black tight prisons that in turn gave rise to sprawling suburbias devouring the land and dispersing human energy. New cities, conceived as vertical "implosions" or human convergence toward high-density concentrations, must be built in order to save nature, but most of all, to save man from the demoralizing consequences of his purely external technological progress and his wasteful dissipation of time and space.

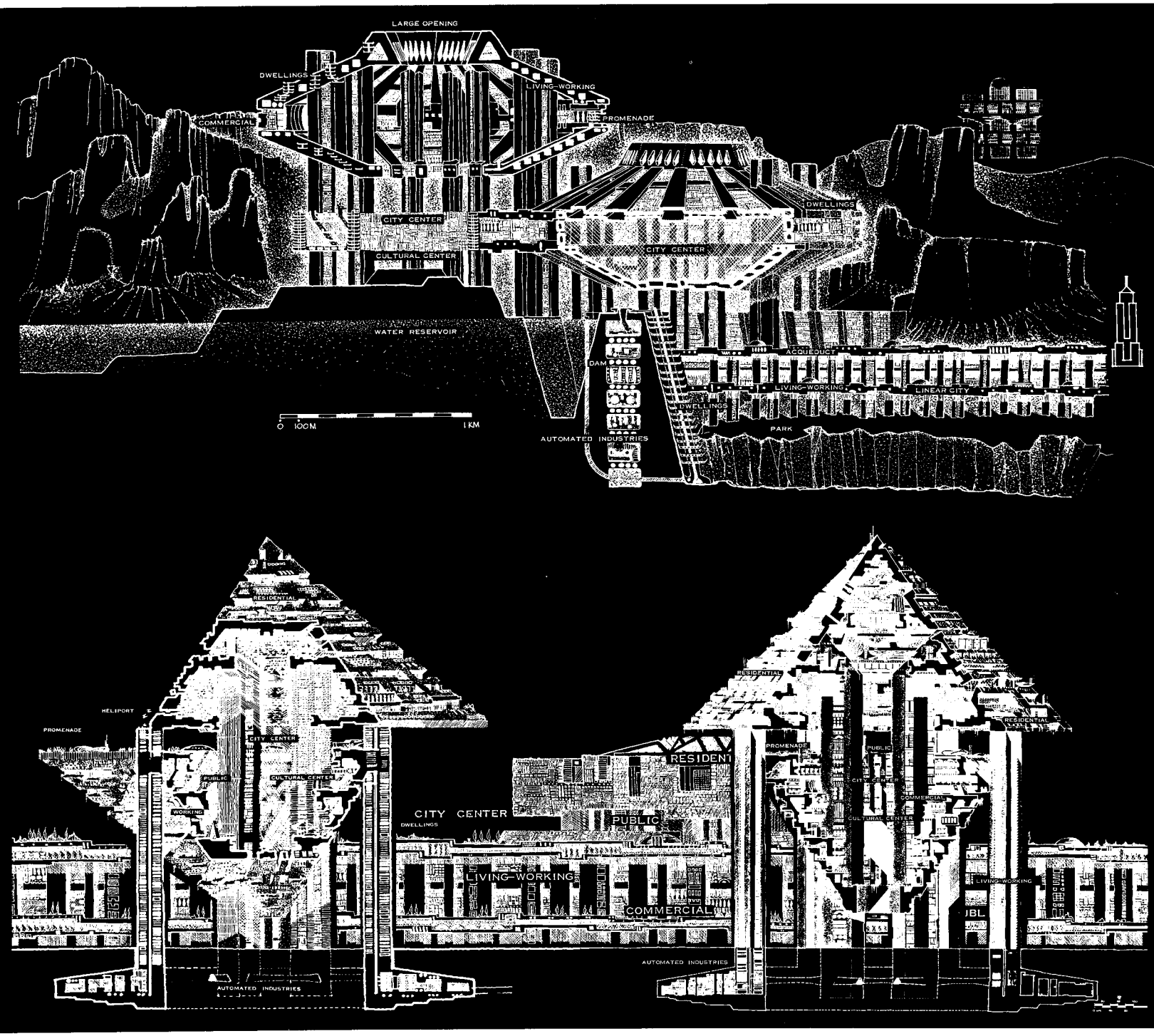
"An arcology (formed from architecture and ecology) is a vast three-dimensional environmental structure which houses urban man in the most ecologically sound and concentrated [i.e.: miniaturized] way. Arcology is conceived as the stage beyond the city."

All of Soleri's proposals differ in shape, structure and site orientation, ranging from *Novanoah I,* planned for the continental shelf or the open sea as a plankton processing industry, to bridges across canyons, or the utilization of hydraulic dam sites like *Babeldiga* **3**. A population of 1,200,000 is concentrated in two gigantic structures whose height can be gaged from the Empire State symbol. The density is calculated at 665 people per acre in terraced layers rising from an aqueduct.

Other arcologies, like *Hexahedron* **4** are adaptable to any topography. Two inverted pyra-

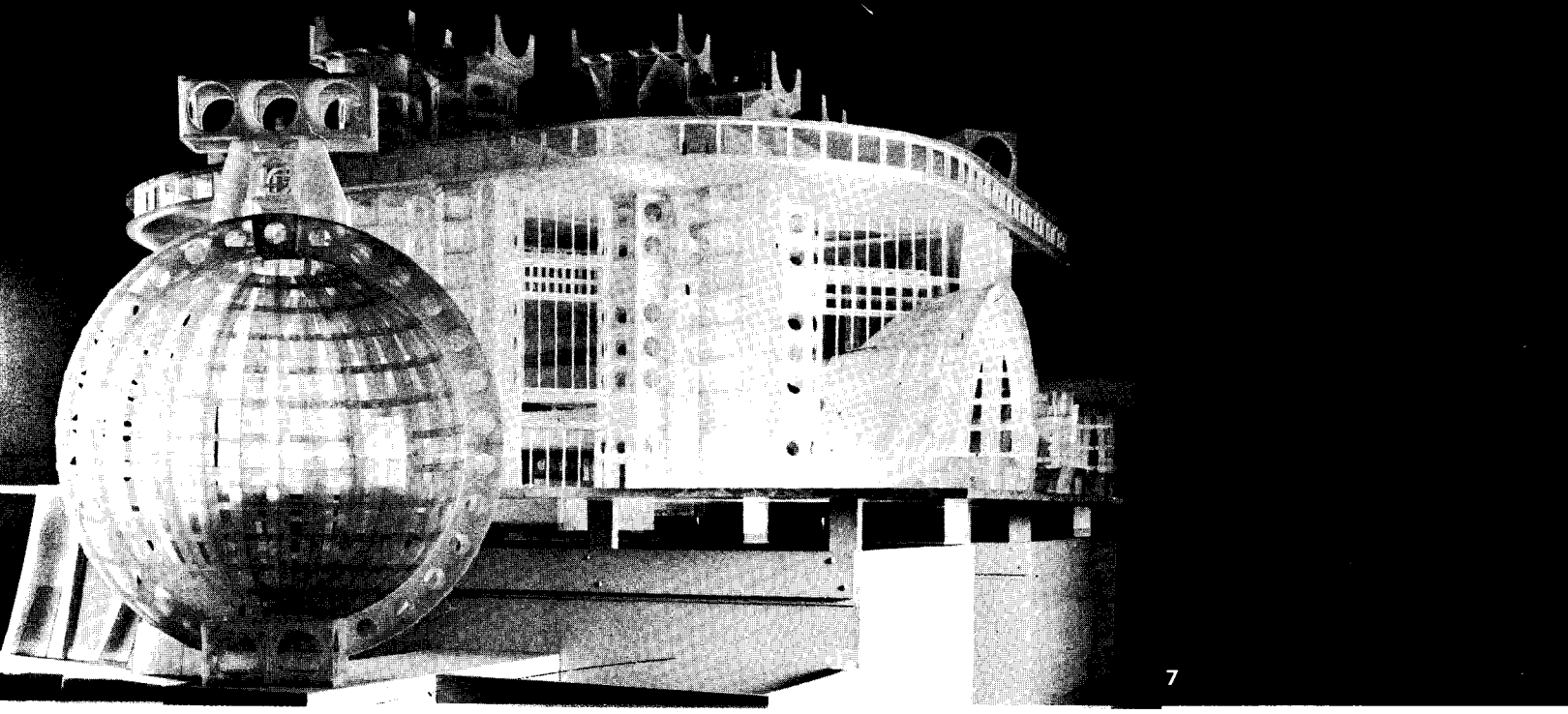
Mrs. Moholy-Nagy is visiting professor at Columbia University's School of Architecture and a frequent contributor to this magazine.

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LARGE OPENING
DWELLINGS
LIVING-WORKING
COMMERCIAL
PROMENADE
CITY CENTER
DWELLINGS
CULTURAL CENTER
CITY CENTER
WATER RESERVOIR
AQUEDUCT
DAM
LIVING-WORKING
LINEAR CITY
DWELLINGS
0 100M 1 KM
AUTOMATED INDUSTRIES
PARK
RESIDENTIAL
HELIPORT
PROMENADE
CITY CENTER
PUBLIC
CULTURAL CENTER
WORKING
CITY CENTER
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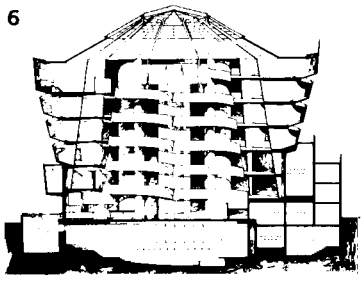
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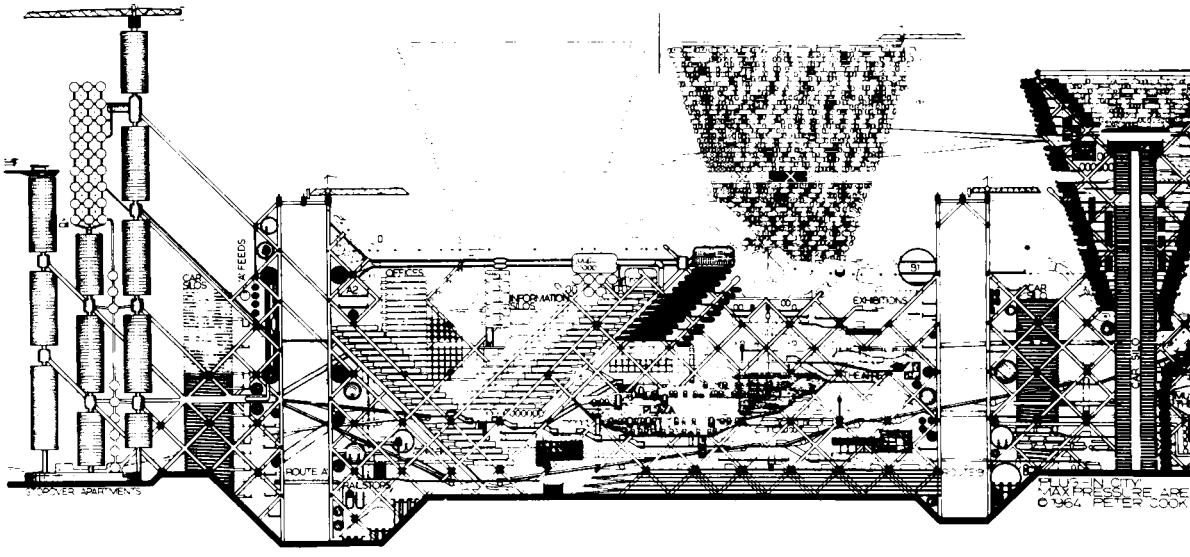

DWELLINGS
HELIPORT
CITY CENTER
PARK
PROMENADE
PUBLIC
LIVING-WORKING
COMMERCIAL
CITY CENTER
LINEAR CITY
LIGHT WELL
AUTOMATED INDUSTRIES
FACTORIES AND UTILITIES



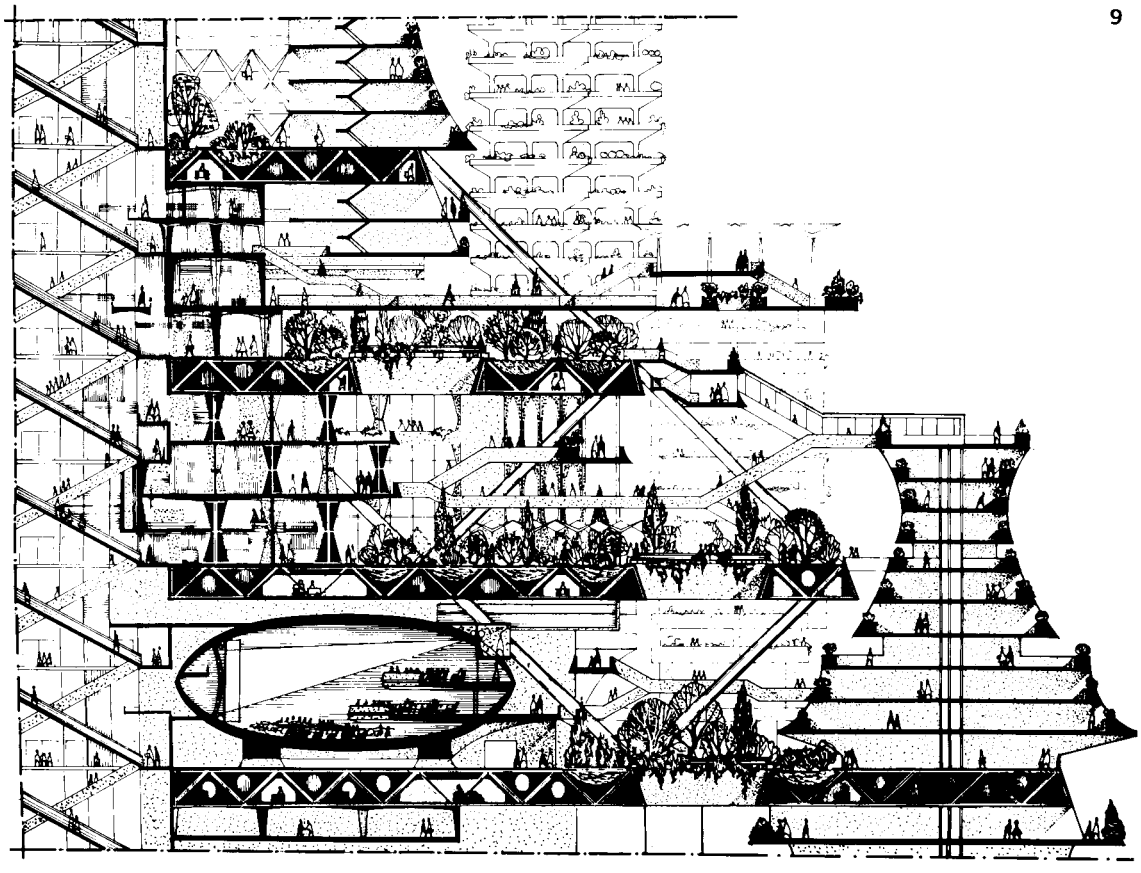
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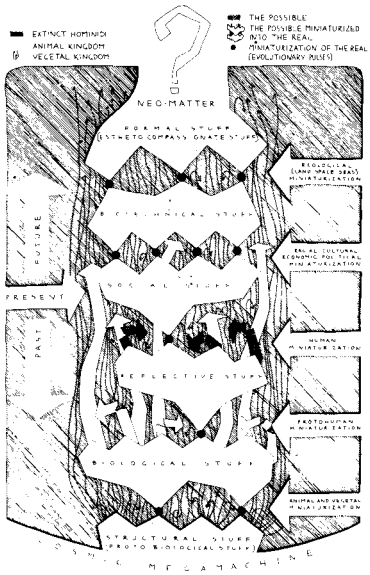


minds of dynamic asymmetry are supported by communication columns and carry on their outside an infinite variety of dwellings that can be inserted into the preplanned loadbearing structure. **5** *Babel IID* houses a population of 550,000 in two massive towers that seem to combine Wright's cantilevered Guggenheim balconies **6** with the taproot system of his laboratory and Price Towers. The largest of the plastic models in the Corcoran exhibition shows an arcology from the inside. Graceful airbridges connect residential and public spaces. Terraces spread on top of truss systems into which residences are inserted; and ten-story-high apses, a recurrent motif that binds many projects together, seem to promise a spatial experience of Roman grandeur.

The smallest of the Arcologies, *Arcosanti* **7**, is to be started in the summer of 1970 with volunteer labor (and in hope of as yet unpromised grants) as a working and learning community for 1,200 of Soleri's most avid followers.

Within the utopian megacity movement that started after World War II, none of this is very original. The Archigram Group's *Plug-In City* **8** or the much more detailed propositions of the *Urbanisme Volumetrique* **9** architects R. Anger and M. Heymann also propose highest density technological environments, computerized in their logistics, artificially air conditioned and lighted, with emphasis on a highly variable vertical perimeter that connects the megacitizens through hanging gardens, balconies and terraces with the exterior world.

Essentially, there are three points that set Soleri apart from all other utopian planners groping for the next develop-



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ment in man. His arcologies are new communities, totally unrelated to the old urban centers —not plug-in renewals but revolutionary prototypes for a total break with existing planning patterns or theories.

Secondly, Soleri postulates the supremacy of esthetics over structure and technology.

"The common confusion of the esthetic with the extravagant makes it difficult to try to convey the relevance of the esthetic. The core of life is esthetic. . . . Esthetic man longs for, seeks, and will create the "non-created" by a reprocessing of nature into the man-made."

And later:

"Nature conservation now depends on our ability to create new and radical urban patterns which are the legitimate subject for architectural thought."

One is reminded of Wright's similar convictions:

"What sap and leaves are to a great oak, a healthy esthetics is to the people . . . an esthetics organically relating man to his environment."

And thirdly, Soleri bases his entire arcology neither on economic, social or industrial considerations but on a philosophical system. It is so all-embracing in its scope that it relates the arcological city units to the entire evolution of organic life, from the proto-biological *"Urschleim"* (primordial ooze) to an as yet unevolved Neo-Matter **10**. This extremely ramified Biological Humanism, touching on every aspect of human existence, defies summation despite 22 chapters of text and 53 diagrams in the large Arcology book, and another detailed exposition in a smaller edition, *Documenta*, sold as catalogue at the exhibition.

The closest one can come to a characterization in very limited space is to say that Soleri attempts a synthesis of Henri Bergson's *Vitalism* which expresses itself through Entelechy, meaning the impetus of a supermechanical force toward the highest life intensity of each organism; with Teilhard de Chardin's *Teleology* that assumes a conscious purpose toward the highest potential in the evolutionary development of man.

From this organic-human convergence, to use Bergson's favorite term, Soleri deduces two principles that must find maximum expression in the man-made cosmos—the arcological city. These two principles are *Complexification* and *Miniaturization*. Insisting that nature and human evolution work as vectors or parallel progressions, he ties the future fate of mankind to the same increasing complexification that has marked the rise of our organism from the amoeba.

In a highly original application of organic-scientific principle to urban planning, Soleri then arrives at the concept of *Miniaturization* which goes like an invocation through his writings. Of all his bewildering semantic innovations (example: "Neo-nature must be congruous with the general swill of evolution"), miniaturization is most irritating because it uses a quantitative term of diminution in a qualitative sense of a positive convergence of energies.

"In any given system the most complex quantum is also the liveliest; in any given system the liveliest quantum is also the most miniaturized."

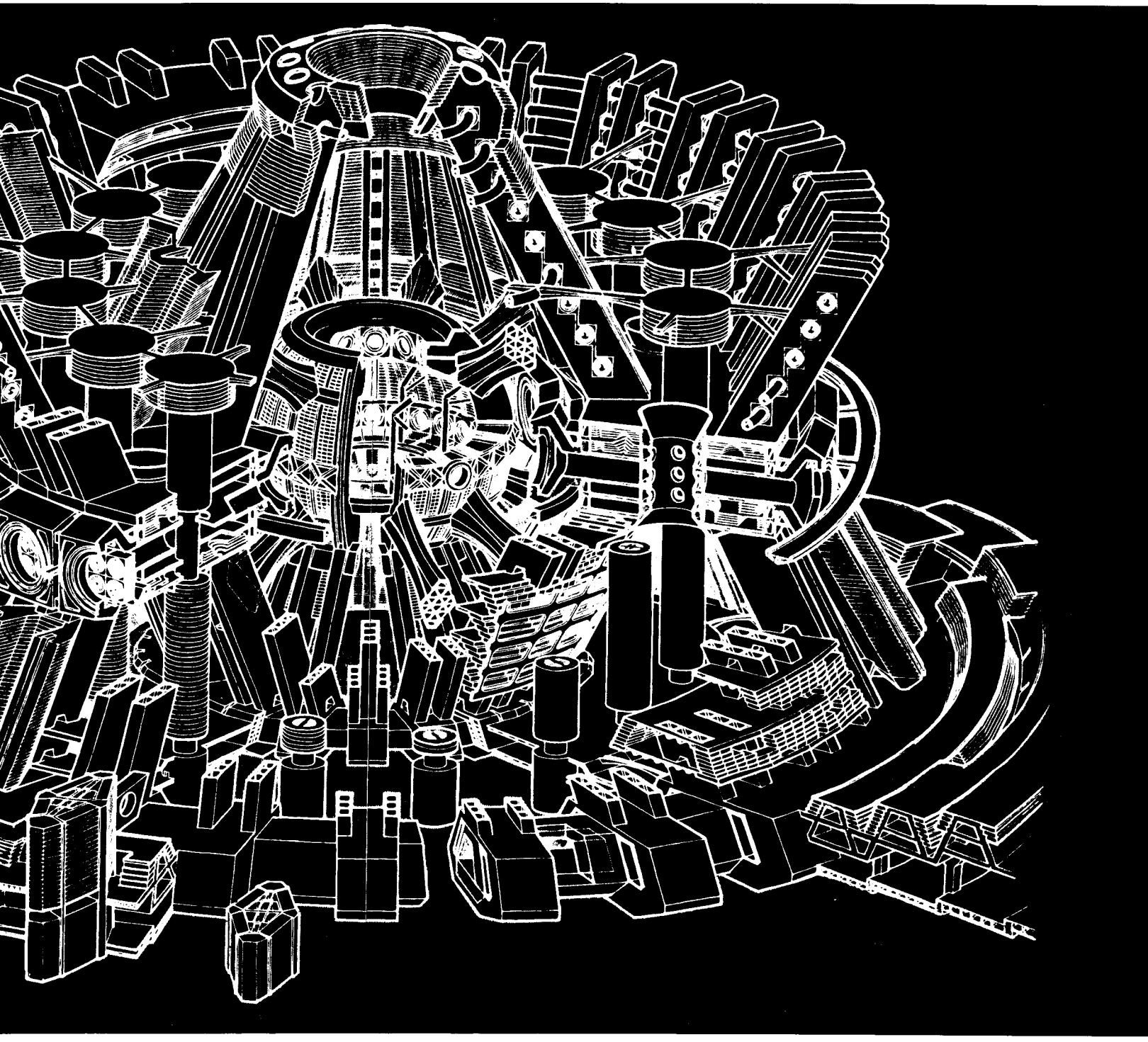
This is fine as far as atoms go. In the concept of cities, it leads to an evolutionary determinism that chains them to an endless complexification, no different from endless successions of more complicated machinery. It denies what Ed Bacon has called "The City as an act of Will," conceived at the dawn of historical consciousness as liberation from the generic determinism of organic life. It also misreads, I believe, the temper of our times in its most promising aspects. The young and independent minds are protesting against the strangling complexities imposed by super-technology and seek a rediscovery of fundamental simplicities.

After an elated reaction to Soleri's grasp of timeless urban characteristics: density, verticality, esthetics, energetic interaction, one stands discouraged before the gigantic model of the "Jersey Three" **11** conceived as a combination of computerized traffic control and residential center. And one hears with trepidation Soleri's plans for an "urban river," a continuous "thickening" of linear communication and habitation bands stretching across the land, no different from propositions by Le Corbusier and Doxiades.

Ten years is a very short period to gestate a revolution. Soleri at 50 is young enough to assert his clairvoyant architectural intuition against the temptations of a leaky scientific umbrella. What we hope for is a "miniaturization" of the Soleri genius converging his manifold talents on the arcological city *in the image of man*, as he has promised us. It was Wright, his spiritual father, who said:

"We therefore need the prophet always to make new abstractions for life, more in accord with the eternal Law of Change. This is largely the service the creative architect renders to his society, now no less than ever. This service he alone may render with conscience, justice and luster."

11



FORUM

(continued from page 29)

oceanographic and research facilities, and also proposed that less obvious money sources, like church funds, be tapped to bankroll low-cost housing. Bright local planners—and a good regional plan already on hand—it was suggested, would help not at all unless Halifax, its twin city Dartmouth, and suburbs were under an overall developmental authority given a binding public mandate to act. Most basic, the experts urged that Halifax start functioning like the largest metropolitan center east of Montreal that it is.

Would the dialogue continue—especially among the 34 groups, many of whom rapped together for the very first time to prepare Encounter agendas? At the last "town meeting," Edward Logue, head of New York State's Urban Development Corporation, told of a wildly successful long term "encounter" that occured when Jesuits set up Boston College Citizens Seminars, where they came at the end of the day to have drinks and hear an outside expert and four local leaders discuss one city issue each session. Alcohol was a most important catalyst in the Boston scheme, loosening up Yankee bankers and Irish pols who hadn't communicated in years.

Halifax already has the lubricant. The Lieutenant Governor's family brews one of the best beers in Canada. The stimulants for change remain to be seen.

ENVIRONMENT

THE PRICE OF POLLUTION

While Standard Oil of California launched a two-page newspaper advertising campaign for their new antipollution gasoline additive—"the most long awaited gasoline development in history!"—the Sierra Club, on the same day, picketed SOC's San Francisco headquarters charging it with "creating history's largest and potentially most devastating oil slick."

The pickets referred, of course, to the 85-sq.-mi. slick off Venice, La., in the Gulf of Mexico (above), which had resulted from the eruption, on February 10, of eight wells at Platform C of the Chevron Oil Co.—an SOC subsidiary. The biggest gusher, Well C-6, was finally brought under control on the first of April. Estimates of the amount



of crude oil spewed into the Gulf have ranged from 504,000 to 798,000 gallons. The pickets were pouring salt on an open wound. Chevron, as the toll mounted, was being hit where it hurt most—in the pocketbook.

In addition to about $15 million already spent by Chevron for cleanup, there were these possible further costs pending: over $100 million in law. suits filed in federal court in New Orleans for potential damage to oyster and shrimp beds; and $2,000 *per day* for *each* of 147 criminal infractions of federal safety regulations alleged by the government when it convened a federal grand jury last month. Chevron, during the 50 days the well was out of control, was sacrificing $425,000 a day in lost oil production. This means—roughly—a potential $150-million price tag.

Interior Secretary Hickel has said the whole thing could have been avoided if the wells had been equipped with storm chokes, as required by federal law. A storm choke costs about $1,500 to buy and install.

SAVING FACE IN A CRISIS

Advertising copy writers, making hay of the *now*est national crisis, are standing on their heads, environment-wise. One furniture manufacturer has worked "ecology" into the name of his newest desk. Our favorite is a Los Angeles face cream company, whose ad begins, "Of Course I Worry About Environmental Pollution."

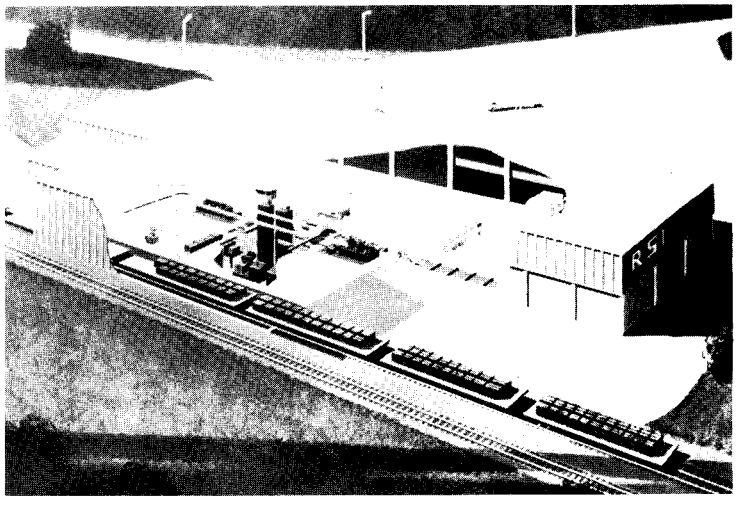
The worrier, of course, is a lady. And what she does to help is apply "Envirogenic" creams and lotions which provide a "skin barrier" against "airborne bacteria and fungi growths."

Then she throws away the plastic container. Of course. (For one possible solution to the garbage problem, see below.)

GARBAGE PRESSES

The nation's first plant for the compaction of refuse by hydraulic press is under construction in East Cambridge, Mass. Owned by Reclamation Systems Inc. of Boston, and designed by Charles A. Maguire & Assocs. Inc., the facility (below) will operate two fully automatic presses capable of compacting 2,000 tons of solid waste in 16 hours.

Refuse—anything from orange peels to pressure cans—will be subjected to 2,200 tons of pressure in the presses and pounded to 10 per cent of its former bulk. Liquids move on to a treatment plant from which they return to the soil through conventional drainage systems. The solid bales—odorless and weighing from 4,000 to 6,000 lbs.—will be trans-



ferred to a loading dock where a mechanical lift will grab the bales and place them in waiting railroad cars for eventual transport to landfill sites. This entire automated system will be operated by a single person in a glass-enclosed control tower high above the scene.

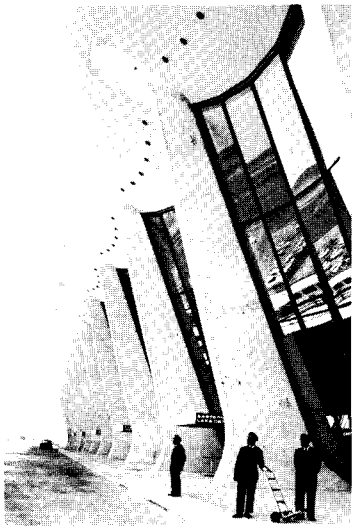
Negotiations are underway with Greater Boston communities and disposal contractors for use of the privately owned plant.

"At the least," says Joseph LaBarbera, president of Reclamation Systems, "compacting could shrink our garbage problem by 90 per cent."

TRANSPORT

THE FUTURE CATCHES UP

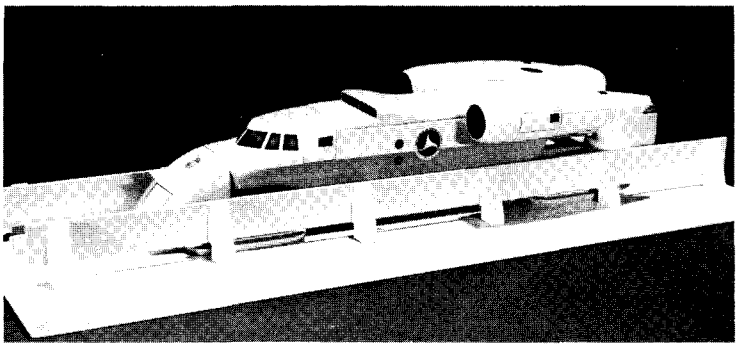
In 1966, three years after it opened, Dulles International Airport in Chantilly, Va., was variously called "The Sleeping Beauty," a white elephant, and "truly the airport of the future,"



because hardly anyone seemed to be using it (above). Now, all that has changed.

"We can't afford the luxury of being ahead," says Arven H. Saunders, director of the Bureau of National Capital Airports, "but we can be right in step with growth." Dulles and its principal competitor, National Airport, have reversed their passenger growth patterns of the '60s. Last year, Dulles handled 23 per cent more passengers than in 1968; National's passenger gain over the same period was only 2.8 per cent. And it is estimated that within three years Dulles will have reached its passenger capacity of 4 million.

Consequently, the Administration's fiscal 1971 budget requests to Congress contain a $7-million item for the first stage of a $14-million expansion of the Dulles terminal building, a masterpiece of the late Eero Saarinen (see also our July '63 issue). The concrete-and-gray-glass, suspension roof structure was, of course, designed for expansion in the Saarinen master plan. Kevin Roche/John Dinkeloo Associates, Saarinen's successors, have been interviewed for the expansion job, along with a handful of other firms. As yet, no architects have been selected.



If Congress approves the money request, the BNCA will begin a 320-ft. extension to the west—as recommended in the Saarinen plan—which will provide an additional 115,000 sq. ft. of space. National Airport, on the other hand, may be dying from old age. One airline president predicts it will be phased out, perhaps as early as 1972.

COMING DOWN TO EARTH

A $3-million contract has been let by the Department of Transportation to the Grumman Aerospace Corp. of Bethpage, L.I., for the design of a "second generation" tracked air cushion vehicle (TACV) and guideway system. Grumman built the Apollo Program's Lunar Module, which landed men on the moon and proved so versatile in last month's abortive mission.

Another $6 to $8 million will be required to build a prototype of the eventual Grumman design. A preliminary model (top) shows the vehicle being powered by jet engines, but the prototype will probably be driven by a linear induction motor (Jan./Feb. issue, page 91).

The vehicle would travel between guide rails on a cushion of air. For stability, air would also be forced against the guide rails from the sides of the cars.

Grumman's engineering and technology design-research, it is hoped, will have led to a prototype by 1972 or 1973. It will then be tested on a 20-mile oval track to be built at a new government proving ground near Pueblo, Colo.

POLIS 76

President Nixon may decide to announce on Independence Day the government's choice from among six proposals for the 1976 Bicentennial celebration. The U.S. Expositions staff is expected to make its recommendations to the American Revolution Bicentennial Commission sometime this month. Four East Coast cities have submitted entries: Philadelphia (Jan./Feb. '68 issue, page 44); Boston (May '69, page 95); Washington, and Miami. "TUBE" (Trans Urban Bicentennial Exposition), a separate entry, centers on a high-speed, gravity-vacuum train that would link the Northeast Corridor cities underground.

"Polis 76" is a merger of two groups, Cambridge Seven Associates, designers of the American Pavilion exhibits at Expo 67, and two Cambridge graduate students, James Chard of the Harvard Business School and Robert Hollister of MIT.

Polis would also link the Northeast Corridor cities, but by high-speed ground transportation on the TurboTrain-Metroliner model, with possible extensions as far south as Atlanta. A "continuous flow system" would couple and uncouple cars from the non-stop train to pick up and deliver passengers at sites along the way.

Local involvement is a second feature. Cities would be encouraged to contribute lasting improvements of their own choice —in housing, local transportation, education, etc.

Last, "committees of correspondence" would cooperate with environmental boards at all levels of government to establish interregional ecological priorities and work to solve them.

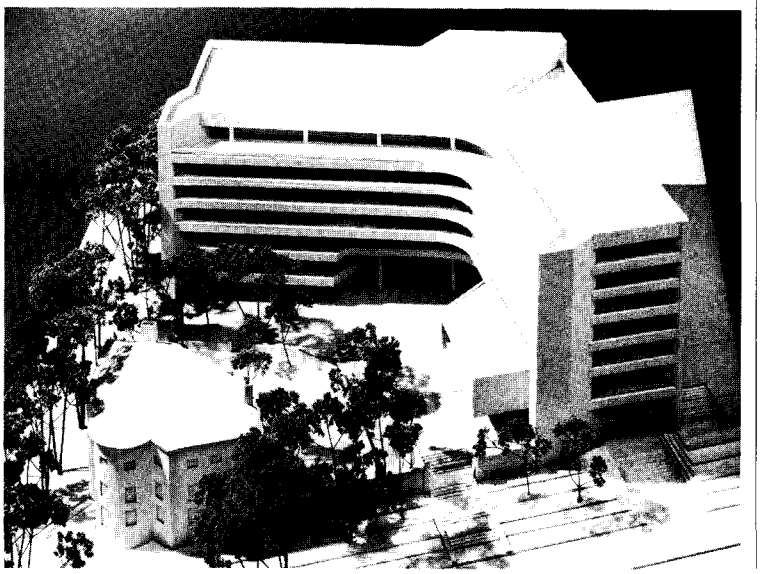
Polis planners admit that their major weakness is an inability to project cost data for their scheme. The four major cities have done so, and have already sunk hundreds of thousands of dollars into their bids. Polis, on the other hand, has remained alive on a budget in four figures and largely volunteer labor.

AIA

FAC APPROVES TAC

Washington's Fine Arts Commission, on April 16, approved The Architects Collaborative's design for the AIA's new national headquarters in Washington (below). The AIA's board of directors followed immediately with their approval, thereby bringing to an end a six-year-long hassle over the building's design.

The FAC had repeatedly rejected the design and revisions



of Mitchell/Giurgola & Associates, who had first been commissioned by the AIA (for final M/G design see Sept. '68 issue, page 91). The problem was to expand its offices and simultaneously maintain the historic integrity of the Octagon House, which occupies a corner of the New York Ave. site.

TAC has designed a seven-story, 130,000-sq.-ft. building that will curve around the national historic landmark, utilizing land presently occupied by the AIA-owned Lemon building. The new headquarters and the Octagon House will share a common, landscaped garden. Norman C. Fletcher, FAIA, is TAC's principal-in-charge.

"Wonderful" was Architect and Fine Arts Commissioner Gordon Bunshaft's word for the TAC design.

The institute hopes to begin construction of the $6.8-million building in late fall.

URBANISM

WARNING ON SEGREGATION

President Nixon has been accused of abandoning all positive efforts to end segregation in this country and of setting a course of national policy that could only end in disaster.

These charges were made by Robert L. Carter, attorney, who is president of the National Committee against Discrimination in Housing (NCDH). The occasion was the release of *Jobs and Housing*, an interim report on a two-year study being made by NCDH with funds from the Carnegie Corporation of New York. The study is the most comprehensive to date undertaken in any metropolitan area on the interrelationships between jobs and housing.

"Even though it has not been completed," says Carter, "the report has clearly shown that 'de facto' segregation—the kind of discrimination the President isn't concerned about—is making urban life unliveable for everyone, black and white, in city and suburb. This is a study that shows just how unworkable one metropolitan region—New York—has become, because racial and economic discrimination has been allowed to determine the region's development. It's a study of how housing discrimination creates unemployment and labor shortages at the same time. Suburban employers are desperate for workers; ghetto residents are desperate for jobs."

Ernest Erber, a planner who is director of the study and of NCDH's research department, says that the starting point of the study was the trend in the region and nation toward separation of more and more Negroes and Puerto Ricans from economic growth based in suburbs. "The research findings clearly show that if this trend continues, the whole metropolitan system will break down," he says, with labor shortages threatening the continued economic growth of the suburbs, while job shortages threaten the financial base of the central city, both curtailing essential services.

PEOPLE

AWARDS

• Kenzo Tange received the Thomas Jefferson Memorial Foundation medal in architecture last month at ceremonies marking Founder's Day at the University of Virginia in Charlottesville.

Tange was most recently in the news for his master plan for Expo 70 in Osaka, Japan (April issue). He received the AIA's Gold Medal in 1966 and was the winner of town planning competitions for the devastated cities of Hiroshima (1948) and Skopje, Yugoslavia (1965).

• The Arnold W. Brunner Award of the National Institute of Arts and Letters will be presented on May 26 to Architects Charles Gwathmey and Richard Henderson. The award consists of a money prize and a citation for "contribution to architecture as an art." Gwathmey and Henderson's works range from the remodeling of the interiors of New York's swinging Electric Circus, to the Neikrug Gallery for Pre-Columbian Art, to a series of spectacular houses (see April '66 issue).

PROFESSORSHIP

Charles Eames, designer of buildings, furniture, toys, exhibitions, and maker of films shown at three world's fairs (and elsewhere) has been appointed the Charles Eliot Norton Professor of Poetry at Harvard for 1970-71. Former Norton professors include T. S. Eliot, Igor Stravinsky, Ben Shahn, and Pier Luigi Nervi.

Eames will be affiliated with the Department of Visual and Environmental Studies at the Carpenter Center for the Visual Arts and will deliver a series of multimedia lecture-demonstrations at the Loeb Drama Center.

ANNOUNCEMENTS

• The second National Exposition of Contract Interior Furnishings (NEOCON II), which will be held in Chicago's Merchandise Mart, June 17-19, has announced a partial list of seminars and speakers. Among the subjects featured are health care, education, offices, design and architecture, and food service and lodging. Speakers include Dr. Harold B. Gores, president, Educational Facilities Laboratories of the Ford Foundation; Charles W. Brubaker, a design partner in the Perkins & Will Partnership; Willard G. Rouse, executive vice president, the Rouse Co., builders of Columbia, Md.; and Maria Bergson, architectural designer.

• The AIA convention—Sheraton-Boston Hotel, Boston, June 21-25—promises a repeat of last year's confrontation that resulted in a $15-million social action program. This year's challenge: the environment.

• William Houseman, editor of a chatty little newsletter called *The Environment Monthly* that sells for $35 a year, is program chairman for the 1970 International Design Conference in Aspen. Some of our more respectable revolutionaries and Britain's master raconteur Peter Ustinov, of last year's conference, may be a hard act to follow, but Houseman has assembled an impressive roster of speakers on the theme, "Environment by Design".

• Many architecture schools in Europe are closed or hopelessly bogged down by student-administration disputes. Alvin Boyarsky, College of Architecture and Art, University of Illinois, Chicago, is holding an International Summer School in London during July and August, to draw "highly motivated" senior and graduate students into a forum with such pros as Reyner Banham, Peter Cook, Hans Hollein, and James Stirling. "In a kind of 'free' school ambience, perhaps some sort of synthesis will result," he says. Write Boyarsky for details.

PHOTOGRAPHS: Page 27, Jack E. Boucher (top). Page 28, Wide World Photos (top). Page 76, UPI (top). Page 77, Evelyn Hofer (bottom left); Robert D. Harvey (bottom right).

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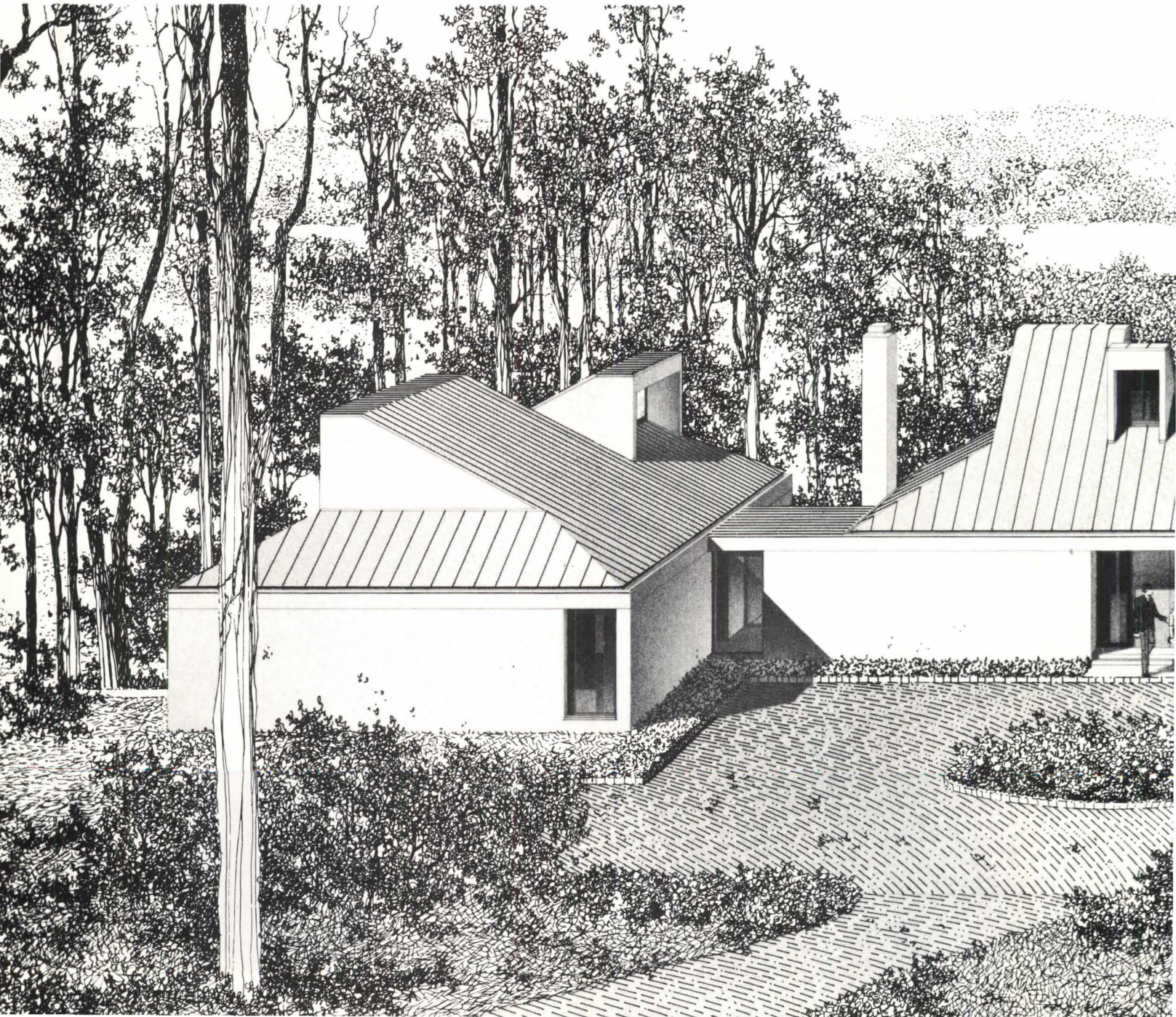
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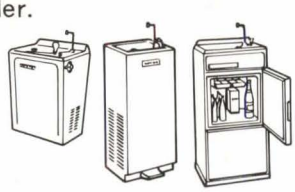
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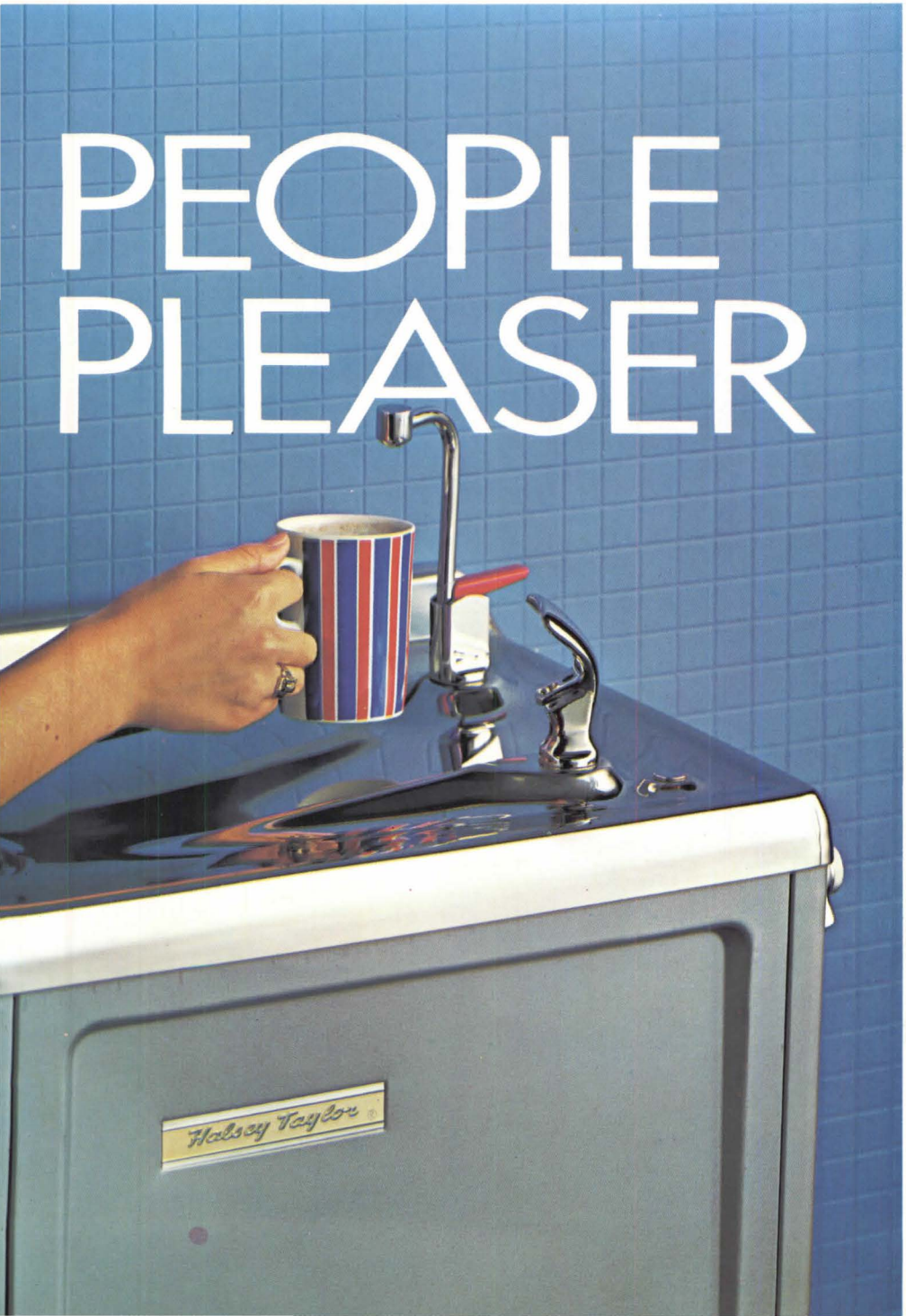
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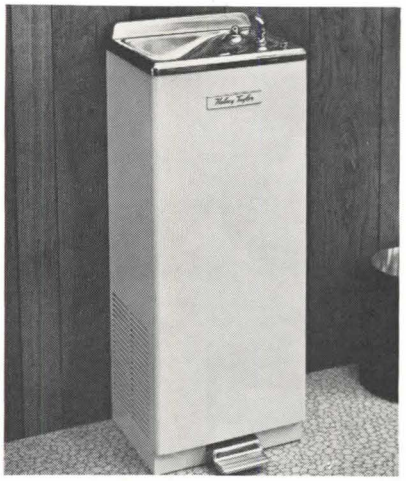
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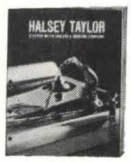
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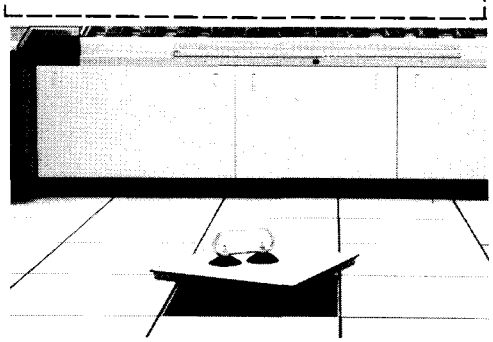
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BOOKS

PASSAGEN: A Building Type of the 19th Century. By Johann Friedrich Geist. Published by Prestal Verlag, Munich, W. Germany. Sponsored by Fritz Thyssen Stiftung. 544 pp. Available from George Wittenborn & Co., NYC. $30.00.

REVIEWED BY VICTOR GRUEN

This book of 544 pages is what one would call *"Walzer"* in German, i.e., one that is so bulky that it has to be rolled towards the reading desk. To say that it is a definitive work would be an understatement. It not only describes about 300 pedestrian arcades or "passages" but also illustrates most of them by means of floor plans, sketches and photographs.

In his foreword, Ludwig Grote gives the reasons for the evolution of this new building type: social and revolutionary changes which occurred at the end of the century and which followed the emancipation of the "bourgeoisie." The foreword also makes a point that the author, in giving a typology of the arcade, attempts to establish the boundary lines for this type of 19th-century building and to separate it from older forms, such as markets and bazaars.

The editorial content of the book makes it quite obvious that the author tried to separate his own field of four years research and study from earlier and later functionally similar expressions of urban life. In his preface he states: "The passage is an invention of private building speculation and belongs to the very few building types which appear within the 19th century and disappear afterwards."

In this respect I find myself not in agreement with the author, as in my opinion the covered pedestrian street, surrounded by stores and other urban functions, has a very long and continuous history.

One could indeed describe the 19th-century arcade as being directly influenced by the oriental bazaar as well as being a forerunner of 20th-century developments which express themselves in regional shopping centers and in revitalized and new city centers and town centers.

Mr. Gruen is the well-known pioneer in shopping center design in the U.S. and the founder of Victor Gruen Associates. He is now operating Victor Gruen International in Vienna.

In order to strengthen his argument that the "passage" is a typical 19th-century invention, the author stresses certain architectural and technological features which are peculiar to the 19th-century arcade, such as the use of iron and glass or the use of new illumination techniques as, for instance, gas and electricity. Thus, he points to the close relationship between "passage" and railroad stations, exhibition buildings and even prisons, which, because of the technology born through early industrialism, have some structural and architectural similarities but which are completely different as far as their role as urban functions is concerned.

The author establishes an artificial boundary line against the oriental bazaar by stating that one of the great differences between the bazaar and the arcade is the fact that the shops in the bazaar open towards the pedestrian area without any enclosure whereas the stores of the arcade are separated from the public walking ways by glass and show-windows.

It seems to me, however, that this is only a very superficial difference caused by the fact that bazaars are mostly found in warmer climates and arcades in colder ones. In fact, 20th-century arcades which benefit from central heating and air conditioning have to a large degree returned to the bazaar-type, open-store front.

(The similarity between the 19th-century "passage" and its 20th-century counterpart goes so far that the chapter "Typology of the Passage" to a large degree could have been utilized for the book I wrote six years ago, along with Economist Larry Smith, *Shopping Towns USA.*)

At the end of the editorial text, the author seems to come to the same conclusion as I do. He writes: "The history of the passage does not end, it is open. . . . One can conclude that we are faced with the return of the passage as the protagonist of a new public space and that the passage of yesterday is the street of tomorrow." However, he then turns against this prophecy by saying: "Whether this will be possible without sociological changes I doubt sincerely."

These doubts I cannot share. I cannot do so because there are hundreds of witnesses to the fact that the 19th-century "passage" *has* returned and that in many ways it has become or will become "the street of the future."

The reasons for the stormy development of the 20th-century type arcade are—and this is significant—the same ones which brought the new building type of the arcade to life in the 19th century: Partly the economic wellbeing of new groups of the population and partly the unsatisfactory and unbearable conditions of the general urban environment suffering from noise, smells and traffic.

The conditions which, for instance, prevailed in Paris towards the end of the 18th century are described in a subchapter which deals with the "trottoir" or sidewalk. This device for the protection of pedestrians, which was an intrinsic part of Roman city planning, disappeared in the Middle Ages. Sidewalks did not come back to Paris before the 18th and 19th centuries. However, they were of such a primitive nature that they created more dangers than improvements for the citizen. The typical Paris street had a gutter for canalization in the middle which with every rain became an impassable river.

Towards the end of the 18th century the dangers in the urban environment were increased because of the introduction of what we today would call individual mass transportation, i.e., fast horse-drawn carriages—and the great difference of speed between those who drove and those who walked created serious traffic conditions.

So when, at the beginning of the 19th century, the street became a dangerous battleground between vehicles and pedestrians, the first "pedestrian protection areas" had to be created and thus the first Paris "passages." However, the author states that, with the introduction of underground canalization by Haussmann and Alphand, the 19th-century arcades began to be deserted.

The author divides the history of the 19th-century arcade into the following stages:

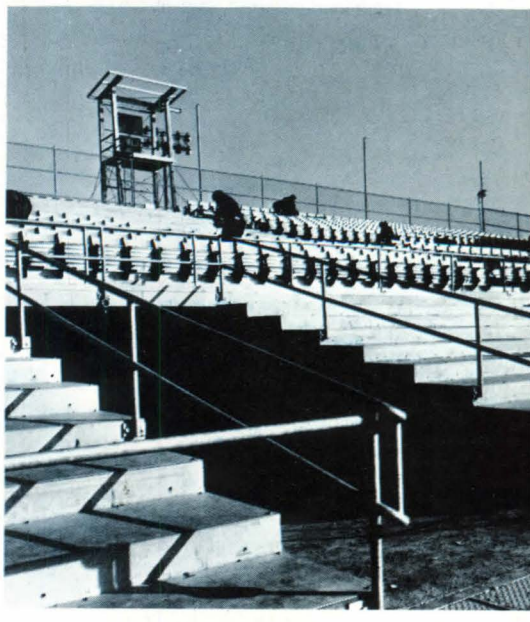
Until 1820: Invention
1820-1840: Fashionable
1840-1860: Larger dimensions
1860-1880: Monumental phase
1880-1900: Trend towards gigantic scale and imitation

(*continued on page* 86)



Montreal shuts out corrosion in North America's first galvanized steel stadium

Corrosion can't get a hit, much less score at Montreal's new, galvanized steel Jarry Park Stadium, home of the Expos. And because rain, snow, and ice can't get through the tough protective zinc coating, corrosion is going to be shut out for at least the next 20 years. ☐ Almost every exposed part of the stadium is of galvanized steel—deck plates, checkered anti-skid aisle plates, flooring joists, diagonal bracing, riser channels, hand railing, expanded steel fence, chain link fence, TV camera platforms, conduit for service lines, bolts and nuts. The "batters eye" is supported on galvanized steel I beams. Even the 220 foot press box structure is of galvanized steel. ☐ Steel is strong, safe, and good to look at. Zinc protects steel's strength and appearance. Even when there is a break in the coating, it keeps on protecting by a unique electrochemical action. ☐ No other material gives you the combination of strength, corrosion resistance, and economy you get from galvanized steel. **St. Joe supplies quality zinc—American industry puts it to work.**



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BOOKS

(*continued from page* 84)

After 1900: Decline of the spatial concept

Yet, after 1900—as the author mentions—Ebenezer Howard developed his concept for *Garden Cities of Tomorrow* and in their center proposed a gigantic ring-shaped passage which he called Crystal Palace.

Out of the wealth of documentation material I would like to mention one which appears on page 101 of the book and which is a reproduction of building ordinances and police regulations referring to the famous Galéries Saint-Hubert in Brussels. A detailed description lists everything that is allowed or forbidden in the large network of passages which Brussels had at the end of the 19th century. For instance, all deliveries and service activities must not be carried out later than eight o'clock in the morning. This document reads very similar to the leasing conditions of a modern regional shopping center.

The example of Brussels is, by the way, an excellent one for demonstrating that the arcade has by no means died out in Brussels, which is a city I often had the opportunity to visit. A whole network of arcades has been added to the 19th-century center and new ones are under construction.

The reasons for this phenomenon are of course the same which encouraged the introduction of the 19th-century passage—the economic wellbeing of a growing middle class and the unbearable environmental conditions of the public streets.

The author also points out, quite correctly, that the great time of the 19th-century passage ended around the turn of the century and most certainly with the beginning of World War I. He considers this the "finis" of the passage.

In my opinion we are only faced with a condition of "hibernation" which lasted for about 40 years and which had manifold reasons:

1) The difficult economic conditions during World War I, during the inter-war period and during World War II.

2) The improvements made in the public environment of cities through the introduction of sidewalks, canalization, traffic regulations, etc., at a time when the automobile had not yet become a threat to safety and health.

3) The fact that the typical 19th-century arcade could no longer manage to adhere to building and fire protection regulations which the awakening social conscience of the society created.

As long as gas light was the only means of illumination, as long as ventilation was a serious problem and as long as building materials and building methods such as exposed iron construction (which was no longer permitted) were the only tools available for the construction of arcades it could obviously not continue its existence.

However, as soon as the environmental conditions of the city street, which was sacrificed to mechanized transportation, deteriorated and as soon as new technological means such as central heating, climatization, automatic sprinklers and fireproof construction became available, the hibernation period ended and in all parts of the world new and more successful arcades began to be built.

My personal experience is probably the best proof for the direct connection between the 19th-century passage and the one of the 20th century. When Victor Gruen Associates designed the first covered climatized shopping center in the U.S. (Southdale near Minneapolis, Minn., opened in 1956) I was directly influenced by the example of the Galleria Vittorio Emmanuele II in Milan which I had often experienced and enjoyed as one of the most famous of all 19th-century arcades. We have just completed a study for the enlargement of the Galleria in order to create a contiguous large pedestrian area in the heart of Milan.

I feel that just because the statement made by the author regarding the "death" of the arcade is—to quote Mark Twain—"highly exaggerated," the book achieves an importance which goes far beyond that of the historical study of a building type. To anyone interested in the problems of 20th-century city planning and architecture it becomes indeed a most valuable source of information and inspiration, especially with regard to the fact that we find that in many cases the 19th-century arcade was not—like so many modern shopping centers—a facility devoted to one function only but to a wealth of urban experiences and urban expressions.

VISUAL THINKING. By Rudolph Arnheim. Published by University of California Press, Berkeley, Calif. 7 by 10 in., 345 pp., $11.50.

REVIEWED BY CHARLES W. RUSCH

Visual Thinking is a theoretical book which sets out to clarify the role perception plays in thinking. Despite its theoretical emphasis (only the last chapter is directly dedicated to education), the book has obvious relevance to education. Our school system has for too long been singlemindedly concerned with training the strictly verbal and numerical thinking skills (e.g., reasoning, logical analysis, math). Those who somehow maintain their "visual thinking" abilities usually select a discipline that demands their use, such as the design fields or the arts. Arnheim believes that true productive thinking depends upon visual thinking abilities, and that, therefore, many of the sciences are also adversely affected by this imbalance in training.

Apart from a general interest in art and design education, the design professions have a more immediate stake in understanding productive thinking. Productive thinking is the lifeblood of the design process. Currently there is a growing awareness that as presently practiced, it is an antiquated process which functions quite poorly, though within a context of fantastic pressure for "productive thoughts." This book falls quite unintentionally, then, within that body of hope which states that by studying the design process, we can understand it better, improve it, and thereby make its products better and/or easier to achieve.

Arnheim begins the book by stating the two basic functions of the mind: gathering information and processing it. Under the traditional model, during perception one gathers information; during reasoning (sometimes equated with thinking), one processes the information gathered during perception. Arnheim's primary goal in the book is, at the least, to bridge that division, and at best, to destroy it completely. He does this by attributing to perception the characteristics which have normally been reserved for thinking itself. He argues that vision is selective, i.e., that we choose what we perceive—"cognitive operations called thinking are not the privilege of mental processes above and beyond perception, but are the essential ingredients of perception itself . . . visual perception is visual thinking." He goes on to argue that perception of shape is the basis for concept formation; that shapes are concepts; in fact, that percepts themselves are concepts. He shows how perception involves problem solving, and gives numerous examples of the "intelligence of perception" at work.

Arnheim then moves into what has been traditionally the most controversial area of the argument—the role of imagery in thinking. He quickly dismisses eidetic imagery (photographic memory) as "not the stuff of thought," and then describes the imagery which is. It is the imagery of patterns and topological relations: incomplete, dynamic, somewhat vague,

(*continued on page* 89)

Mr. Rusch is an associate professor at the School of Architecture and Urban Planning at UCLA.



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(*continued from page* 86)

"yet with great precision of pattern." It is at one time the abstract of scientific discovery and of artistic creation, and very much "the stuff of thought." The controversy centers around whether images can be abstract or generic; Arnheim argues that not only *can* they be abstract, but they are of real value *only* when they are.

By this point, the bridge between perception and thinking is fairly complete. Perception (defined as the grasping of the relevant generic features of the object) is selective and hence based on abstraction. Imagery—to Arnheim the memory component of perception—becomes useful to thought as it becomes abstract. Reasoning, everyone agrees, *has* to be abstract; and thus by Arnheim's argument these three critical cognitive components—perception, imagery, and reasoning—are parts of a unitary process whose essential trait is (at every level) abstraction. The bridge is abstraction.

Arnheim then tells us what abstraction is not. First: "abstract" is not the opposite of "concrete." Second: "abstraction is not the fruit of generalization but its necessary prerequisite." Then he defines somewhat less clearly what abstraction is. The distinction is made between "container concepts" formed usually by rules (which tell us whether an object or idea in question should be admitted to the "container"), and "type concepts" which specify the underlying structural essence of the entity. Whereas container concepts are specified by rule, type concepts are apparently simply cognized (and then later recognized). Arnheim goes on to stress the *dynamic* quality of concepts which are not at all static but "highspots within a sweep of continuous transformations." There is a strong tendency to say that the static highspot and not the dynamic set of transformations is the concept; much confusion results from this mistaken idea. One can see here the perceptual qualities of Arnheim's definitions of conception, whereas earlier he made the conceptual qualities of perception apparent.

With his argument thus established, Arnheim goes on in the remaining chapters to reconstruct the world around it. He gives numerous examples of how the old dichotomy between perception and thought has impeded problem solving, and shows how productive thinking is enhanced by, indeed, relies upon visual thinking. He demonstrates how the abstract visual imagery of pure shape can be matched to abstract referents such as number and quantity to teach basic mathematics more effectively. "Thoughts need shape, and shape must be derived from some medium." The appropriate medium, for instance, of basic math is geometric imagery.

Contrary to the linguistic conviction that perception and thought are determined in large part by language, language has its origins in perception. Language, rather than being indispensable to thought, merely serves to help imagery along. Words act both as convenient memory tags for images, and more importantly, serve to identify the intended level of abstraction of a particular image. Arnheim exposes the spatial, visual, or pattern-like connotations which lie at the roots of all words.

In a final chapter, "Vision in Education," Arnheim stresses the importance of training all students in visual thinking as an aid to both problem solving and communication. Steering clear of art education as the cultivation of "good taste" and/or the training of exact reproductive drawing skills, he advocates training the skilled use of the diagram or schematic sketch to reveal, explore, and communicate the structural and functional essence of object and idea. Such visual training based on the theoretical bridge between perception and thought would act in the practical realm to bridge the cultural divide which presently exists between art and science. Visual training would serve both "cultures" equally well.

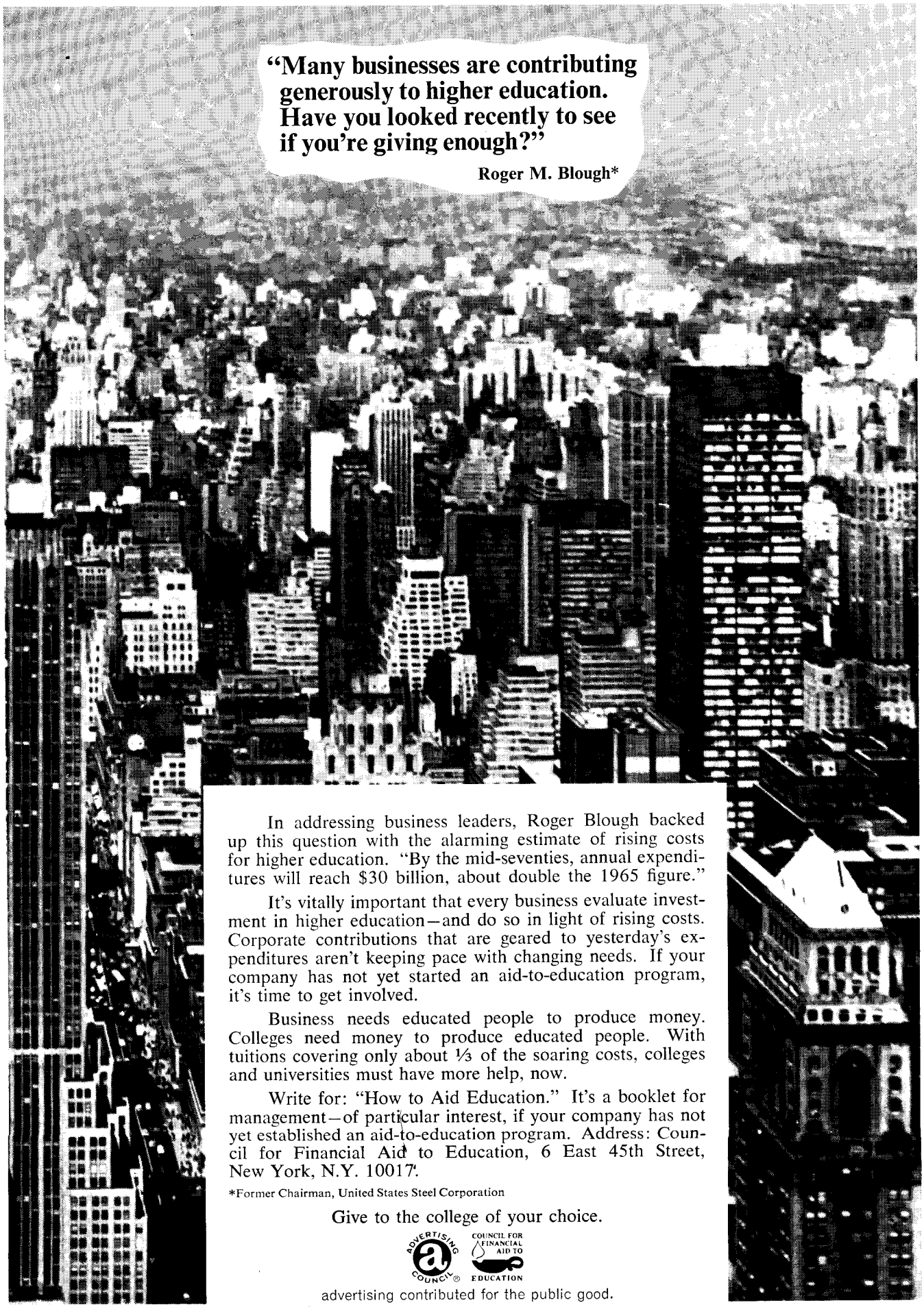
As should now be evident, the book is directed more toward psychologists and philosophers than toward designers, artists, or even educators. Yet it is my guess that it will be the latter group which responds most favorably to it. To most psychologists and philosophers the book will seem curiously regressive. Arnheim seems to be opening an old wound which had been thought to have healed over. Most psychologists seem to believe that thinking is something like "inner speech," and imagery when it occurs at all just supplies us with useful, but unnecessary, illustrations. Many of us in the design disciplines, the arts, and the experimental side of the natural sciences have persistently refused to buy that argument, and Arnheim has apparently emerged as our spokesman. Thus, if the book serves to open the old wound, it will have served us well.

On the other hand, I believe Arnheim could have gone further toward convincing other psychologists that he has new evidence to add to his case. Rather than muddy the waters by expanding his definition of perception to include conception and imagery, I would have preferred that he recognize their differences while at the same time pointing out as he does their common origins in abstract process. Perception is clearly not the same as conception. The former requires an external stimulus; the latter does not. Both produce symbols which are the intentional products of an intelligence, but the percept, even as product, is not the same as the concept; its origins are different, and the recycling of information through it is different. Both, as symbols, are pieces of meaning which we construct to "stand for" more complex bodies of information. Thinking is the manipulation and interweaving we perform upon those meaning systems. When we perceive or conceive, we are constructing meaning in creative activity. When we think, we are constructing linkages between those meanings. Imagery is pattern-like, shifting, momentary, powerful; reasoning is sequential, precise, analytic, logical. Arnheim is correct in asserting that perception provides, indirectly through the memory system, the *content* of thought. But Piaget is also correct in asserting that the sensorimotor system provides the operational basis or the *process* for thought.

Obviously, we desperately need both content and process to productively think through the problems we face. We need to build a rich storehouse of images, and we need to build upon that foundation a rich storehouse of lingual and mathematical meanings. We need to develop as many ways as there are of operating upon those storehouses. To continue to argue in this day that reasoning is "higher" or "better" than imagery is dangerous nonsense. Arnheim has written an effective counter-argument to such nonsense. Now the task is to go beyond argumentation into action.

SEVEN REPRINTS FROM MOMA

The Museum of Modern Art in New York City has reprinted 50 out-of-print publications in 31 volumes which are now available from MOMA or (by mail) from Arno Press Inc., 330 Madison Avenue, New York City 10017. In the field of architecture, seven titles are of particular interest: *Modern Architecture: International Exhibition 1932* (with foreword by Alfred H. Barr Jr. and historical summaries by Philip Johnson and Henry-Russell Hitchcock Jr.); *Machine Art* by Philip Johnson; *Built in USA: 1932-1944* edited by Elizabeth Mock, and *Built in USA: Post-War Architecture* edited by Henry-Russell Hitchcock Jr.; *Modern Architecture in England* by Hitchcock; *Introduction to Modern Design* by Edgar Kaufmann Jr.; and *Organic Design in Home Furnishings* by Eliot F. Noyes. Prices range from $8 to $20; the entire set of 31 titles may be purchased for $390.50.



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Electric Space Conditioning System Assures Safe, Flexible Operation For 2-Story Floating Restaurant



The Gangplank Restaurant in Washington, D.C., is a two-story structure atop a floating barge.

PROJECT: Gangplank Restaurant, Washington, D.C. ARCHITECTS: Gitlin, Cantor and Rosenberg, Washington, D.C. CONSULTING ENGINEERS: Dollar-Blitz & Associates, Washington, D.C.

DESIGN CHARGE: To design a floating restaurant capable of being moved via waterways to any dockside location with a minimum of effort and expense.

DESIGN RESPONSE: Architect Elliott Gitlin's design is a two-story structure of plywood and aluminum curtain wall atop a 28 by 60 foot barge. The building is painted a light blue, has extensive sliding glass windows and doors to provide a panoramic view of the water, and can be approached by land or sea. Patrons can park their cars dockside or tie their boats to floats alongside the barge.

Interior space is divided into two main areas with the kitchen, cocktail lounge, office, and storage space on the first level. The second level contains a dining room for 120 people, a serving pantry, and a bar. Both decks are heated and cooled by separate packaged air conditioning units with strip heaters, mounted topside. The fans of both units operate continuously while the compressors and heaters are cycled, as required, under the control of wall-mounted thermostats in each area.

Engineer H. F. Chandler explains that the electric space conditioning system was selected because it offered the greatest degree of safety, flexibility and ease of installation. Flame fuels were eliminated, he says, because the barge is constructed of plywood and it was felt that storing liquid or gaseous fuels on board would constitute a fire hazard in addition to requiring a much larger barge to accommodate them.

Architect Elliott Gitlin reports that the Gangplank Restaurant has been towed to various dockside locations, as anticipated, and then "plugged in." This capability, he says, is a decided advantage of the electric system since it gives the owners the kind of operational flexibility they wanted with a minimum of effort and expense.

SEE REVERSE SIDE FOR DETAIL INFORMATION

1 CATEGORY OF STRUCTURE:
Commercial—Restaurant

2 GENERAL DESCRIPTION:
Area: 2912 sq ft
Volume: 40,320 cu ft
Number of floors: two
Number of occupants: 180
Number of rooms: 5
Types of rooms: dining room, kitchen, cocktail lounge, office, storage & pantry

3 CONSTRUCTION DETAILS:
Glass: double
Exterior walls: 2″ thick aluminum curtain wall, plywood shell, 1½″ rigid insulation (R = 5), sheetrock; U-factor: 0.15
Roof or ceilings: built-up roof on wood deck, 6″ mineral wool batts (R=19), sheetrock; U-factor: 0.04
Floors: wood and carpet
Gross exposed wall area: 3200 sq ft
Glass area: 1656 sq ft

4 ENVIRONMENTAL DESIGN CONDITIONS:
Heating:
Heat loss Btuh: 360,000
Normal degree days: 4333
Ventilation requirements: 1500 cfm
Design conditions: 0°F outdoors; 70F indoors
Cooling:
Heat gain Btuh: 180,000
Ventilation requirements: 1500 cfm
Design conditions: 95F dbt, 78F wbt outdoors; 75F, 40% rh indoors

5 LIGHTING:
Levels in footcandles: 30-100
Levels in watts/sq ft: 2-4
Type: fluorescent and incandescent

6 HEATING AND COOLING SYSTEM:
The two decks occupied by the bar and restaurant are heated and cooled by separate packaged air conditioning units equipped with strip heaters and mounted topside. The fans of both units operate continuously while the compressors and heaters are cycled as required under the control of wall-mounted thermostats in the two areas.

7 ELECTRICAL SERVICE:
Type: underground
Voltage: 120/208v, 3-phase, 4-wire, wye
Metering: secondary

8 CONNECTED LOADS:

Heating & Cooling (15 tons)	105 kw
Lighting*	12 kw
Cooking	57 kw
Water Heating	54 kw
Other	52 kw
TOTAL	280 kw

*Includes outdoor lighting

9 INSTALLED COST:*

General Work	$ 53,750	$18.50/sq ft
Elec., Mech. Etc.	71,250	24.48/sq ft
Wooden Barge	14,000	4.80/sq ft
TOTALS	$139,000	$47.78/sq ft

*Restaurant was completed 2/67

10 HOURS AND METHODS OF OPERATION:
9½ hours per day, six days per week.

11 OPERATING COST:
Period: 10/8/68 to 10/10/69
Actual degree days: 4124
Actual kwh: 383,760*
Actual cost: $6,797.24*
Avg. cost per kwh: 1.76 cents*
*For total electrical usage

Billing Date	Degree Days	Demand	kwh	Amount
11/ 8/ 68	183	90	24,600	$ 477.94
12/12/68	723	95	33,240	569.69
1/14/69	1033	116	50,040	736.40
2/12/69	782	104	37,560	614.41
3/14/69	830	103	40,080	643.25
5/13/69*	540	107	56,640	1,053.13
6/12/69		88	32,880	617.13
7/14/69		80	32,280	591.88
8/12/69		73	29,160	542.51
9/11/69		73	27,000	520.01
10/10/69	33	68	20,280	430.89
TOTALS	4124		383,760	$6,797.24

*Two-month period

12 FEATURES:
The use of two separate heating and cooling systems permits independent control of the conditions in the two main areas of the establishment—the dining room and the cocktail lounge. Thus indoor design temperatures can be maintained despite varying occupancy of the two areas.

13 REASONS FOR INSTALLING ELECTRIC HEAT:
Because a primary objective was to provide for relocation of the barge from time to time with a minimum of cost and effort, the plug-in capability of electric space conditioning was a deciding factor. In addition, there would be no need to store liquid or gaseous fuels on board, which would lead to space savings and a reduction in fire hazard.

14 PERSONNEL:
Owner: Martin Gorewitz
Architects: Gitlin, Cantor & Rosenberg
Consulting Engineers: Dollar-Blitz & Associates
General Contractor: Wolf-Ginsberg Const. Co.
Electrical Contractor: Southern Bell Electric Co.
Mechanical Contractor: George F. Warner & Co.
Utility: Potomac Electric Power Company

15 PREPARED BY:
C. E. O'Daniel, Architect-Engineer Contact, Potomac Electric Power Company.

16 VERIFIED BY:

Elliott Gitlin, AIA


Murray Blitz, P.E.

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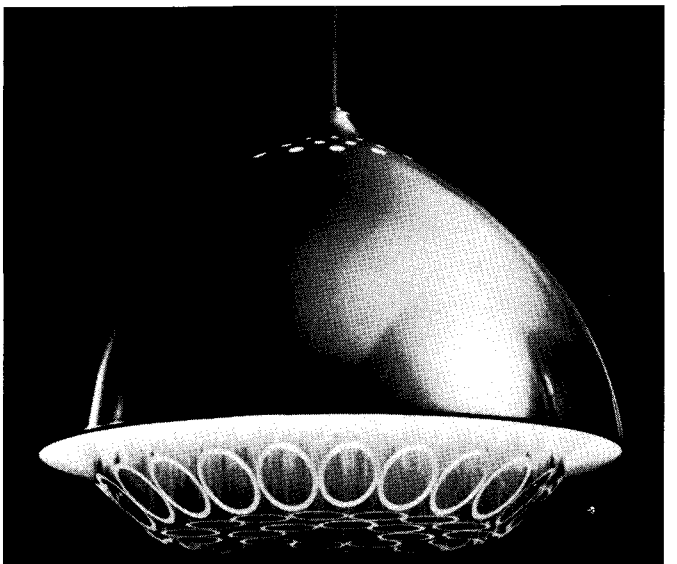
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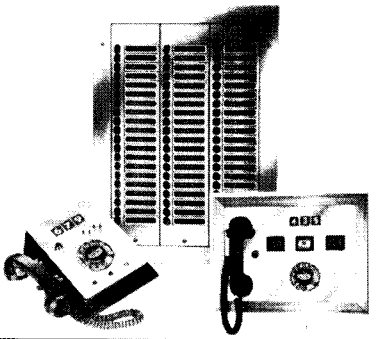
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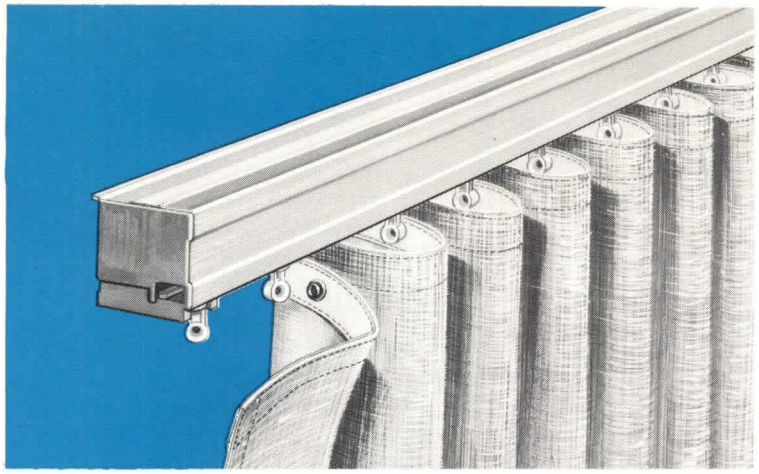
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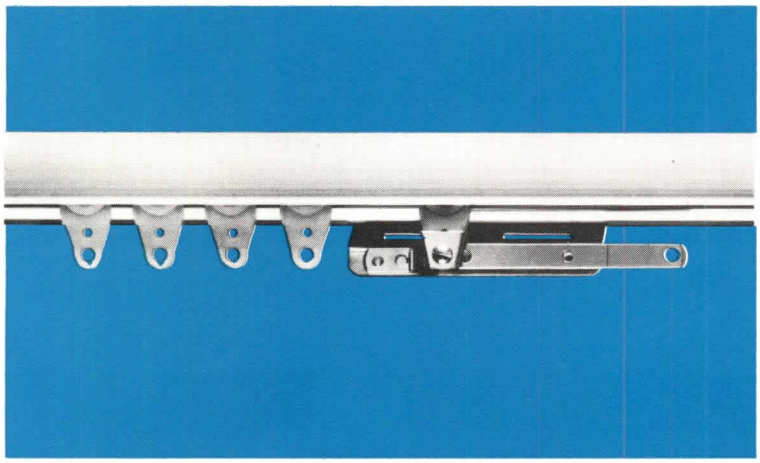
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Versatile is the word for these systems. Four dual track and five single track styles provide choices for wall, ceiling or overhead mounting; recessed, corner or perimeter treatments; and cord or hand operation.

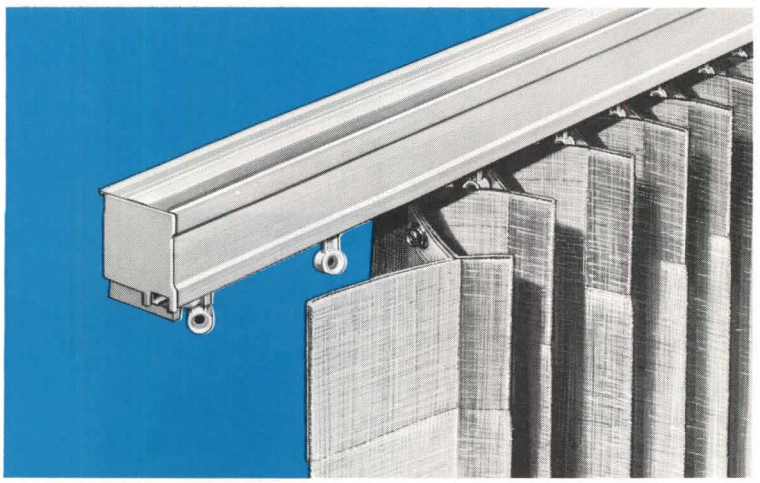
Anodized aluminum tracks complement contemporary casings for windows or sliding glass doors. Dual-channel styles permit one- and two-way draw to 40', multiple-draw to 80'. Draws for single-channels are 24' and 48'.



Electrac® Traverse System

Operates draperies without draw cords, pulleys, gears or separate motor. A revolutionary power capsule is magnetically powered along the rear of the rod, drawing draperies as it goes.

The power switch can be located anywhere, and you can either build in Electrac to new designs, or simply plug Electrac into existing outlets. Operates on any 110 v. outlet. Electrac is available in Ripplefold and Accordia-Fold, as well as in a wide range of decorative finishes.

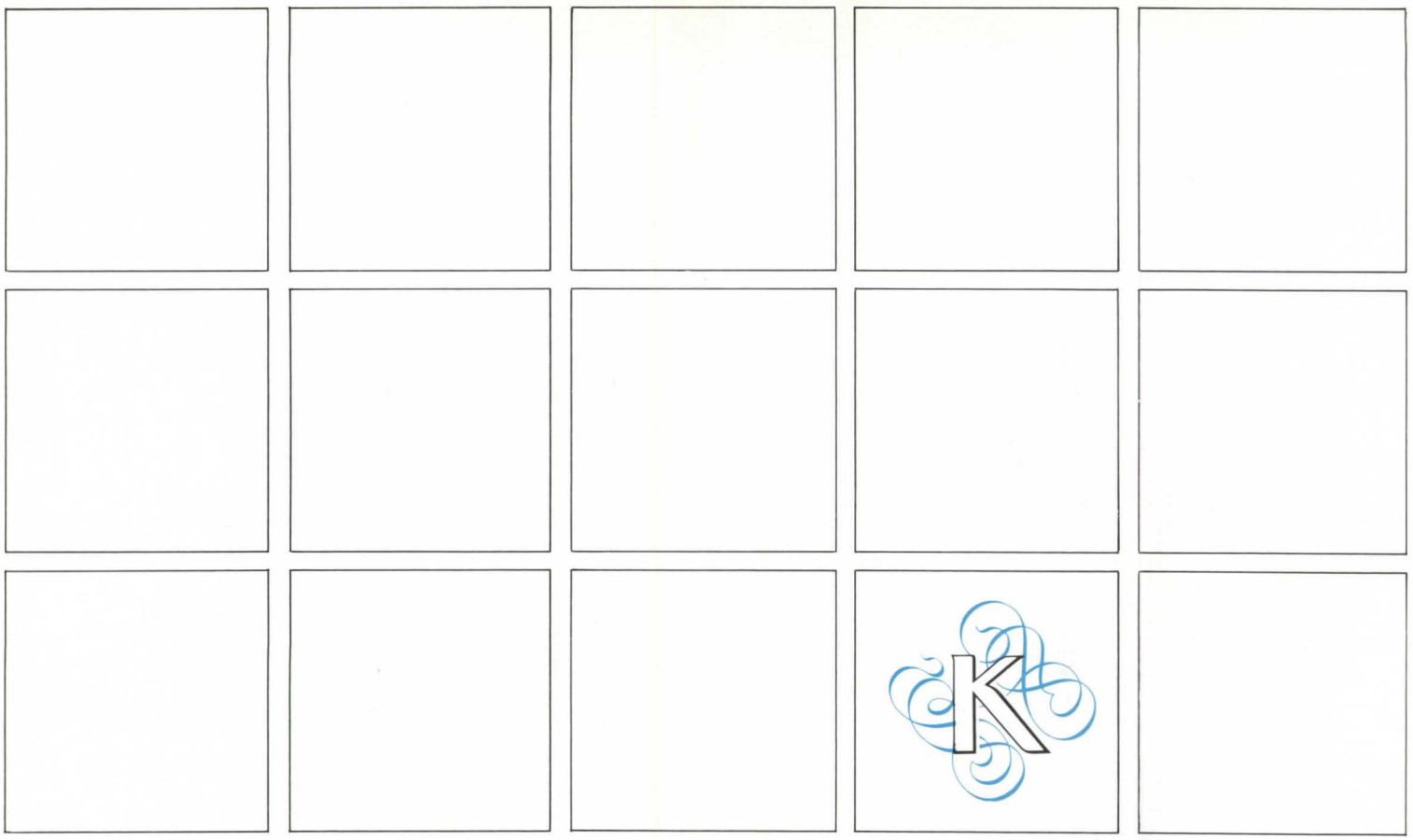


Accordia-Fold® Drapery Heading System

Snap-on, snap-off simplicity, plus the slimly tailored look to complement today's crisp architectural lines. Accordia-Fold utilizes Compact Architrac; a track that is just one-half *inch deep*. Mounts flush to ceilings, behind cornices.

This system gets its name from the sharp, trim, accordion-pleated folds into which the panels fall. And drapery materials stack into half the space needed for pinch-pleated draperies, look the same from either side.

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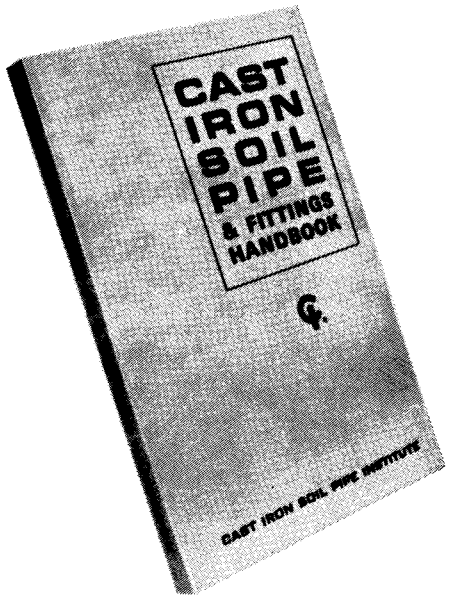
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On Readers' Service Card, Circle 223

TECHNOLOGY

(continued from page 57)

Inflated, plastic greenhouse is prototype of bigger things

This one-acre, air-inflated plastic greenhouse, erected one year ago as an experimental project, is the largest structure of its kind in the world—100 ft. wide, 428 ft. long, and 20 ft. high. Yet it's only a beginning.

Later this year, a 3½-acre version will be erected and there are plans to extend the system further. Eventually it may be used to enclose entire communities, outdoor shopping plazas, campuses, stadiums and parks.

The greenhouse project in Wooster, Ohio, was sponsored by Goodyear Tire and Rubber Co., which has experimented with outdoor inflated structures for over ten years, and the Cleveland Greenhouse Vegetable Growers' Cooperative Association, which will also help sponsor the 3½-acre version. According to Goodyear, "The simple erection technique and inexpensive materials used make the plastic enclosure the most economical and practical system yet devised for covering vast areas."

Materials include poly vinyl chloride (PVC) plastic film, about 12/1,000 in. thick, inflated to .1 per cent higher than normal atmospheric pressure and contained by a double cable network. The cabling is made of galvanized steel, with ¾-in., 12,000-lb. cables running lengthwise and lighter, 3/16-in. cables running transversely, at about 4½-ft. intervals. The greenhouse's basic structural module is about 40 ft., with tiedown cables every 40 ft. Goodyear, however, says this is flexible and is working on a 60-ft. module.

The vertical elements seen in the picture (below) are used as hollow drain pipes, held in tension and linked to an underground drainage system. All cabling is in tension and designed to hold the greenhouse down, not up. There is a complete change of air every five minutes and pressure is maintained by 25,000 cfm fans. The small interior overpressure makes it possible to leave even large doors open without significantly reducing the structure's interior pressure. The Wooster structure has standard garage doors.

Goodyear estimates the system, including the plastic skin, cables, fans, doors and erection labor, will cost about $1 per sq. ft. of area covered, regardless of size. Marketing will be done through franchised dealers, in the U.S. and abroad.

The company is optimistic that the plastic system can be used for human habitation. A primary limitation is the plastic skin. PVC is strong, inexpensive, easy to use and ages well, but it can become soft at about 150 deg. F. Goodyear hopes to develop a plastic variation that will have a wider temperature range and has already installed several test panels in the greenhouse. The greenhouse is also being used to test wind loading and has withstood 75-mph winds.



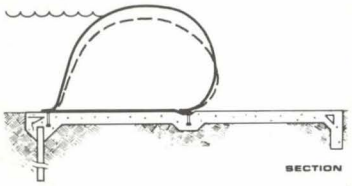


Inflatable, fabric dam helps form new recreation areas

An inflatable dam that looks like a giant sausage can create recreation lakes faster and more cheaply than ordinary damming.

The inflatable structure, called Fabridam by its manufacturer, Firestone Coated Fabric Co., of Akron, Ohio, is a hollow tube of rubber-coated nylon fabric that Firestone says will let debris pass with no problem. The dam may be inflated with air, water or both and may be installed across a river or the top of an existing dam.

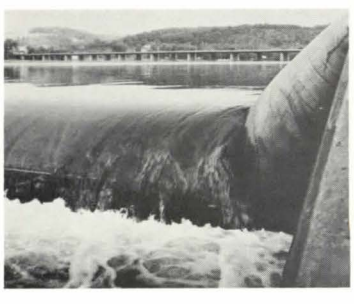
For flood and storm control, the dam can be partially or wholly deflated to prevent upstream flooding. The speed of deflation and the type of controls (manual or automatic) may vary. The dam will remain stable, with a uniform crest level between abutments, at all levels of inflation.



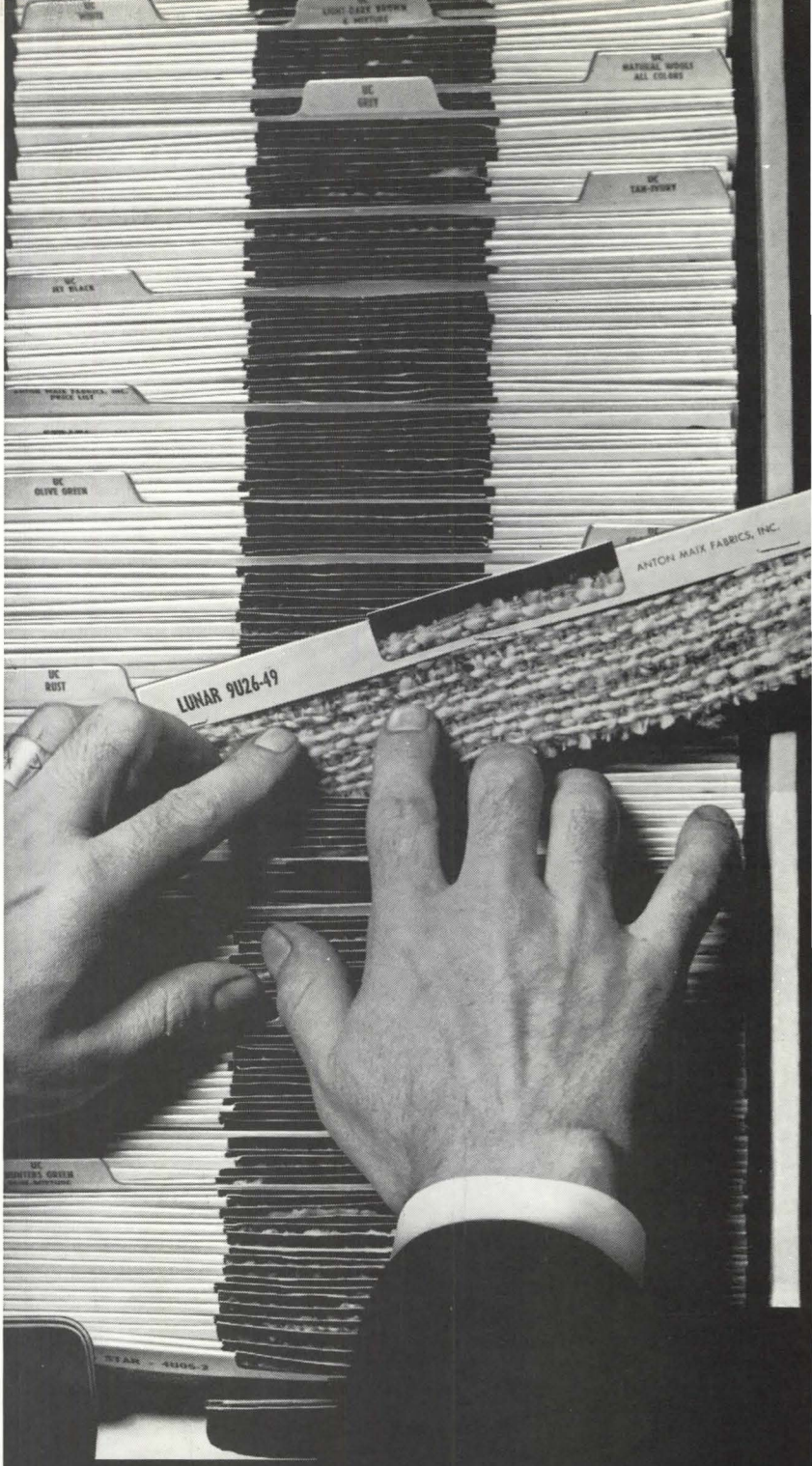
The fabric dam's foundation is a reinforced concrete slab (drawing above), wide enough to accommodate the sections in a flattened, deflated state. Headwall slabs support and seal the Fabridam's end sections. Special clamp bars anchor the dam sections to the foundation slab, forming a waterproof seal. The open ends of each tube section are anchored similarly, usually resulting in an offset, triangular-shaped end.

Fabridams are designed and installed under the auspices of N. M. Imbertson & Associates, a Firestone licensee. Norman Imbertson invented the concept over ten years ago and since then the inflatable dam has been used for flood and tidal control, multipurpose engineering projects and to raise existing dams.

Creating purely recreational areas is the most recent application for the dam, with the first major installation coming just last year, in Sunbury, Pa. That dam (photo) created a 3,000-acre lake and is made of seven 300-ft. inflated sections.



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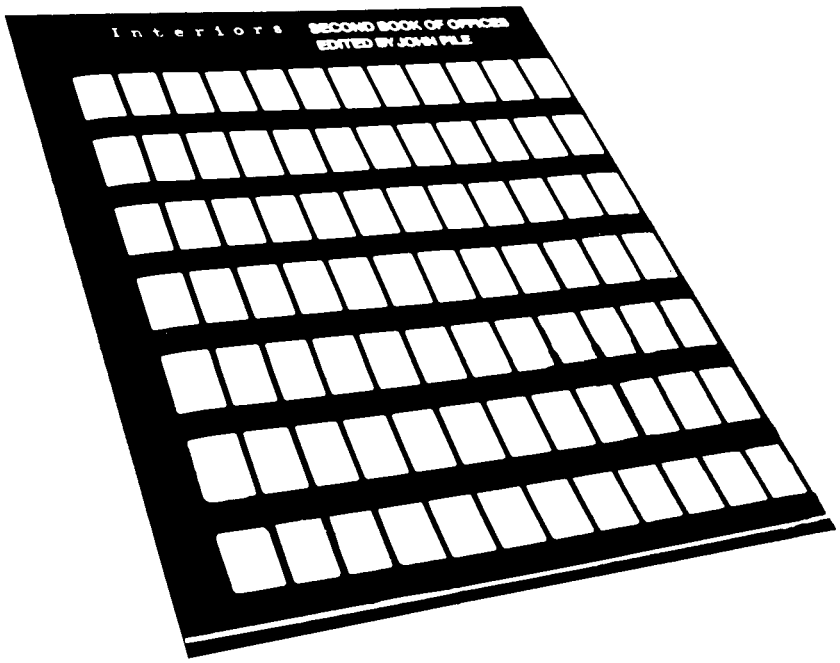
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To order material described, circle indicated number on self-addressed Reader Service Card, facing page 100.

DOOR/WINDOWS 601

Amerada 1970-a 12-pg 4-color catalog with information and data for all glazing needs: Sound Control, Heat Exclusion, Fade protection, Bullet-resistance, etc. Amerada Glass Co. On Reader's Service Card, circle 101.

Catalog includes technical information on LOF glass; includes Vari-Tran® and Vigilpane® SA 68. Libbey-Owens-Ford Co. On Reader's Service Card, circle 102.

ELECTRICAL EQUIPMENT 602

Complete catalog of specification grade electrical wiring devices. Including new 770 touch switch and matching receptacles. Slater Electric Co. On Reader's Service Card, circle 103.

Detection Systems

Pyr-A-Larm Fire & Smoke Detection Systems. 16-pg illustrated brochure contains descriptions and diagrams of working principles of these systems. Includes suggested applications. Pyrotonics, Inc. On Reader's Service Card, circle 104.

Communications

12-pg full-color brochure covers the Teletalk Zoned Communications: system planning aid and uses for private switch of dial controlled intercom, sound, music and paging equipment. Webster Electric Co. On Reader's Service Card, circle 105.

FLOORING 603

Weberfloor. Unique access flooring in use in many jobs with few, if any, special-purpose requirements. 12-pg illustrated brochure details construction and economic benefits. Weber Architectural Products, Div. of Walter Kidde & Co. On Reader's Service Card, circle 106.

FLOORING COVERING 604

"Successful Contract Carpeting with du Pont Fibers," a new book addressed to the specifier in the important contract market. Highlights ANTRON® nylon, optimal commercial carpet fiber with unique ability to minimize soil appearance. E. I. du Pont de Nemours Co. On Reader's Card, circle 107.

Catalog #FL104 details and illustrates properties of Enjay's laminated floor tiles. Enjay Fibers and Laminates Co. (Nevamar). On Reader's Service Card, circle 108.

FURNISHINGS 605

"Heywood-Wakefield Theatre and Auditorium Seating." Package contains full-color illustrations and includes dimensions and descriptions. Heywood-Wakefield. On Reader's Service Card, circle 109.

The U.C. Collection-a kit containing 300 chromatically arranged 3x9 swatches of upholstery fabric with a 5-year guarantee and continuous service offer. Includes order form and price list. $15.00 cost of kit credited to first order. L. Anton Maix Co. On Reader's Service Card, circle 110.

HARDWARE 606

12-pg booklet on Architectural Hardware for Schools and Colleges covers wide variety of hardware items; many unusual designs, information re Corbin's Master Keying System. Form No. K-873. P.&F. Corbin Div. Emhart Corp. On Reader's Service Card, circle 111.

24-pg fully illustrated booklet gives information on choosing correct type of hardware for every type of entrance. Kawneer/Amax Co. On Reader's Service Card, circle 112.

"Electrac by Kirsch." 12-pg full-color brochure with complete technical information on linear motor-powered drapery traverse rod. Kirsch Co. On Reader's Service Card, circle 113.

Fire control devices-2-pg brochure contains illustrations and diagrams of complete line of fire control equipment for doors. Norton Door Closer Div., Eaton Yale & Towne, Inc. On Reader's Service Card, circle 114.

1970 Condensed Catalog. New 20-pg catalog describes full line of advanced architectural hardware including specs and function charts. Sargent & Co. On Reader's Service Card, circle 115.

HEATING/AIR CONDITIONING 607

New 24-pg Design Manual on Chromalox electric Airduct Heaters. Complete description and illustrations of mechanical characteristics, detailed mounting and application information, wiring diagrams and other electrical features, thermal properties and engineering specs. Edwin L. Wiegand Div., Emerson Electric Co. On Reader's Service Card, circle 116.

Spec data hermetic and open Turbo-pak chiller, 670 to 1030-ton capacity range. York Corp., Div. of Borg-Warner Corp. On Reader's Service Card, circle 117.

INSULATION 608

Acoustical

4-pg illustrated brochure details properties, installation methods and special features of the new Accesso® suspended acoustical ceiling system. Includes specs. Keene Corp., Sound Control Div. On Reader's Service Card, circle 118.

Literature describes sound transparent acoustic fabric of inherently flameproof (mono-filament and multi-filament) yarns for covering speakers and organ pipes in public buildings. Includes sample card and binder with sample. Meltex, Div. of Wendell Fabrics Corp. On Reader's Service Card, circle 119.

Thermal

Thermal insulation for roof decks, re-roofing, parking decks, plazas and ice rinks. 16-pg technical brochure including charts, tables, specs, etc. Silbrico Corp. On Reader's Service Card, circle 120.

LIGHTING 610

Updated 12-pg brochure on lighting for hospital patient rooms features the Hospital Bed Light. 4 separate yet integrated light sources in 1 compact unit: indirect fluorescent, direct fluorescent reading light, incandescent night light and indirect examination light. Lightolier. On Reader's Service Card, circle 121.

Brochure NS750 describes "Miri" by Neal Small. The latest in the series of acrylic dome lamps, this is a 19" table lamp of polished chrome tubing. Nessen Lamps. On Reader's Service Card, circle 122.

Plexiglas in Lighting—44-pg booklet gives complete optical-physical data on Plexiglas (TR) acrylic plastic for indoor and outdoor lenses and diffusers. Rohm & Haas Co. On Reader's Service Card, circle 123.

MASONRY 611

12-pg full-color brochure #IAC134A illustrates specific applications and gives installation details, specs and physical properties of Facespan and Corspan. Johns-Manville Corp. On Reader's Service Card, circle 124.

6-pg full-color brochure describes new line of MonoStone resin-bonded, exposed aggregate facing panels. Interior and exterior applications and installation details shown. Cutaway photo of typical panel shows construction features. Martec Corp. On Reader's Service Card, circle 125.

METALS IN BUILDINGS 612

"Lead—A Metal for the Future." An 82-pg booklet highlighting the history of lead and its major applications. Available from St. Joseph Lead Co. On Reader's Service Card, circle 126.

OPERABLE WALLS 613

Brochure highlights features and specs of Quiet Wall operable walls. Includes fabric sample, cutaway drawings and technical data. New Castle Products, Inc. On Reader's Service Card, circle 127.

PLUMBING EQUIPMENT 615

Cast Iron Soil Pipe & Fittings Handbook-comprehensive and authoritative, fully illustrated, covering use and specs of cast iron soil pipe and fittings. Cast Iron Soil Pipe Institute. On Reader's Service Card, circle 128.

1970 16-pg catalog on Oasis Water Coolers. Gives Spec Data, applications, with full-color illustrations. Includes selector guide. Ebco (TR) Mfg. Co. On Reader's Service Card, circle 129.

1970 24-pg catalog illustrates drinking fountains, plumbing fixtures and trim. Includes drawings, special application data. The Halsey W. Taylor Co. On Reader's Service Card, circle 130.

ROOFING/SIDING 616

8-pg 2-color brochure on seamless Terne roofing contains standard and seam specs. Illustrated. Follansbee Steel Corp. On Reader's Service Card, circle 131.

STRUCTURAL 617

12-pg fully illustrated brochure shows details of "Safeguard" Gravel Stop System and "Modu-Line" Fascia Panel System. Includes diagrams and specs. W. P. Hickman Co., Inc. On Reader's Service Card, circle 132.

WALLS/LAMINATES/ PARTITIONS 618

Spec information on all panels includes Marlite plank and block, Korelock and firetest panels. Marlite Div. Masonite Corp. On Reader's Service Card, circle 133.

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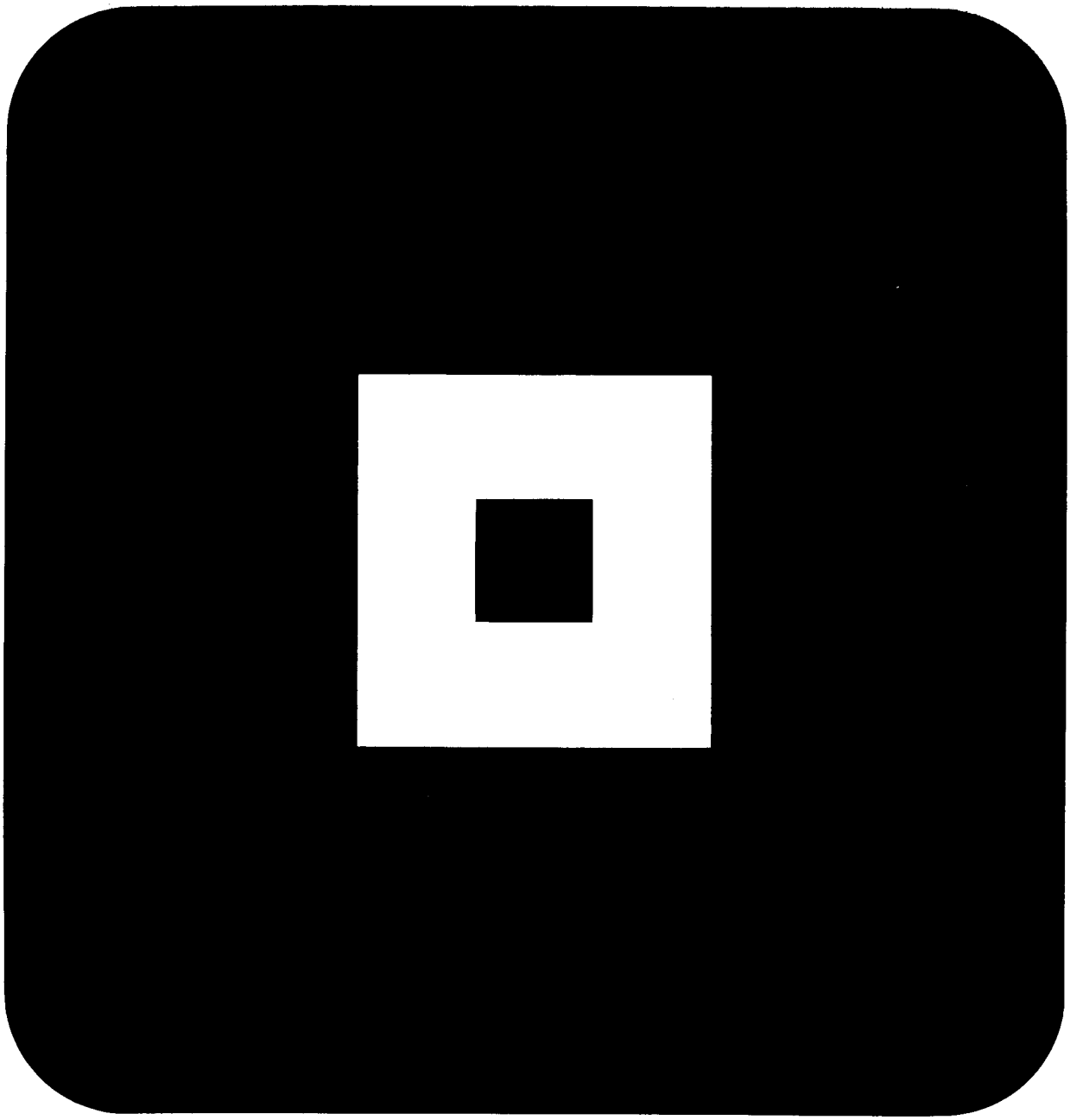
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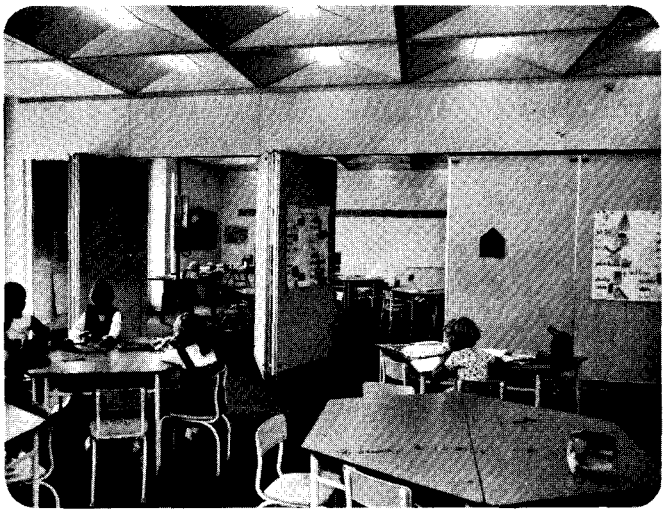
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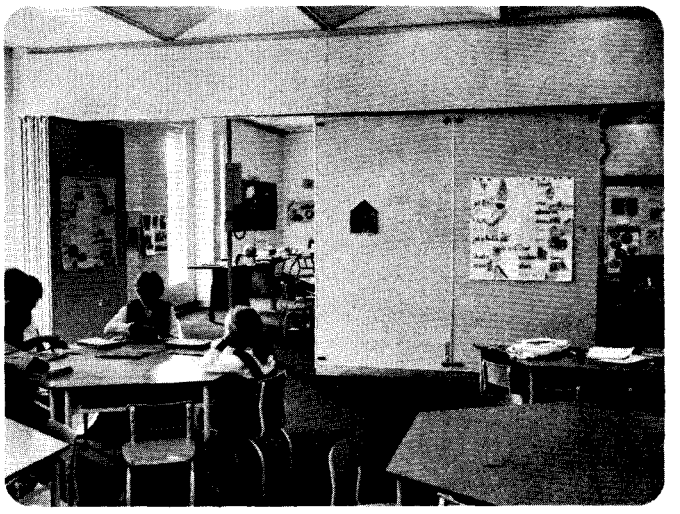
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Laboratory	Geiger & Hamme
Operation	Manual
Panel Construction	18 Gauge Steel
Panel Sequence	Model 521—single panel, side stack Model 522—paired panel, center stack
Maximum Height	Both models 14′0″
Hanging Weight	6.5 pounds per square foot

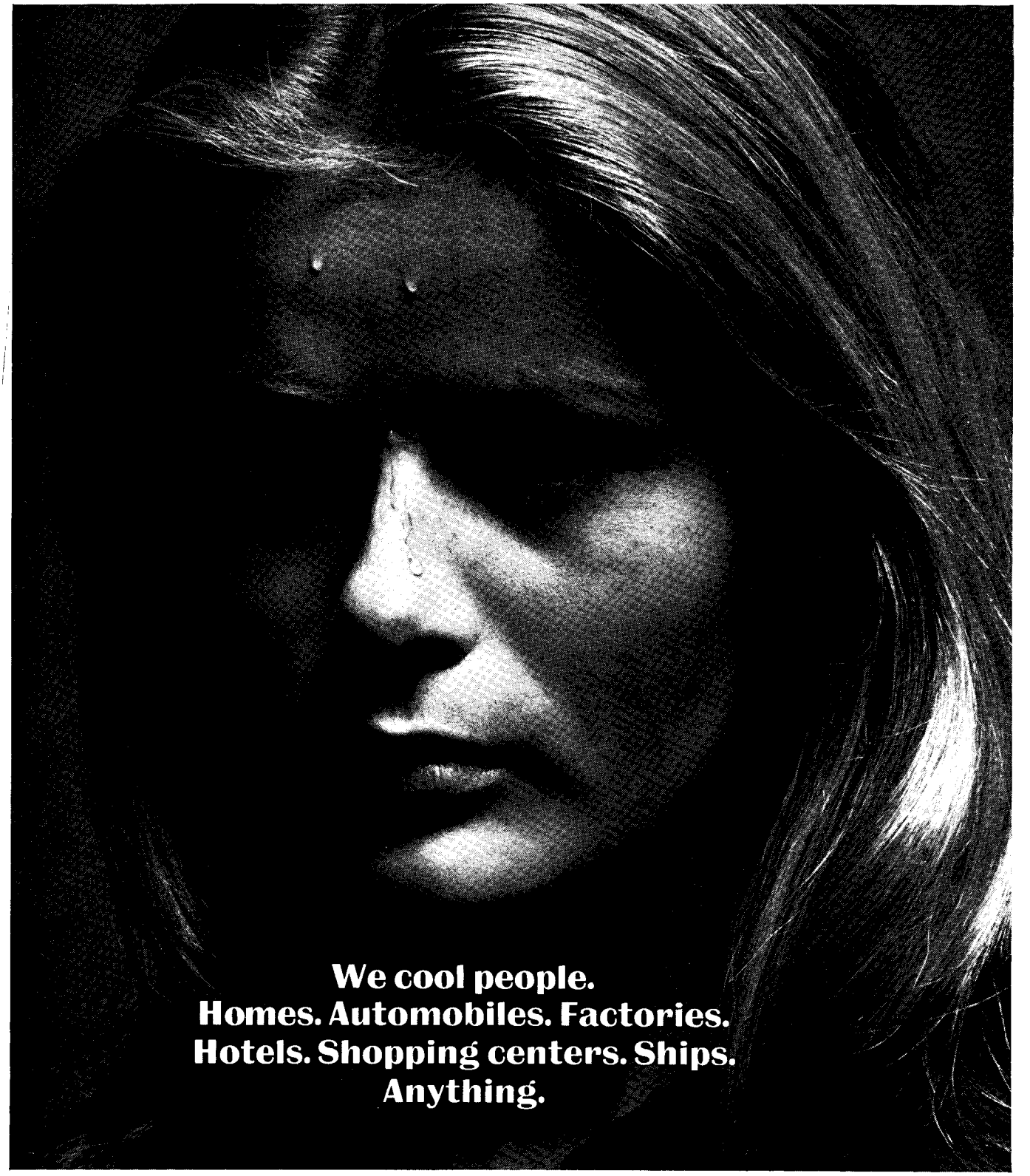
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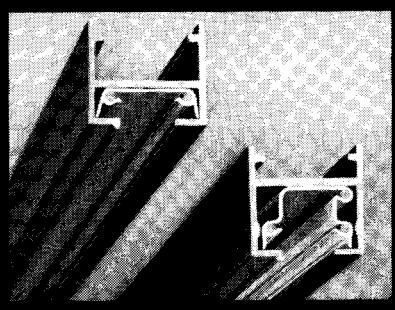
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1. EXPERIENCE. Lightolier's Lytespan was introduced 13 years ago. Since then, miles of it have been installed throughout the U.S. and around the world. Our contacts with specifiers, both here and abroad through five foreign licensees, put an unequalled body of experience at your disposal.

2. WHAT WILL YOU NEED TOMORROW? Ever since we developed the first integrated track lighting system, we've been a step ahead of our competitors in the design and in the performance of our lighting units. When you install Lytespan today, you can be sure that every new development we make tomorrow will fit your system.

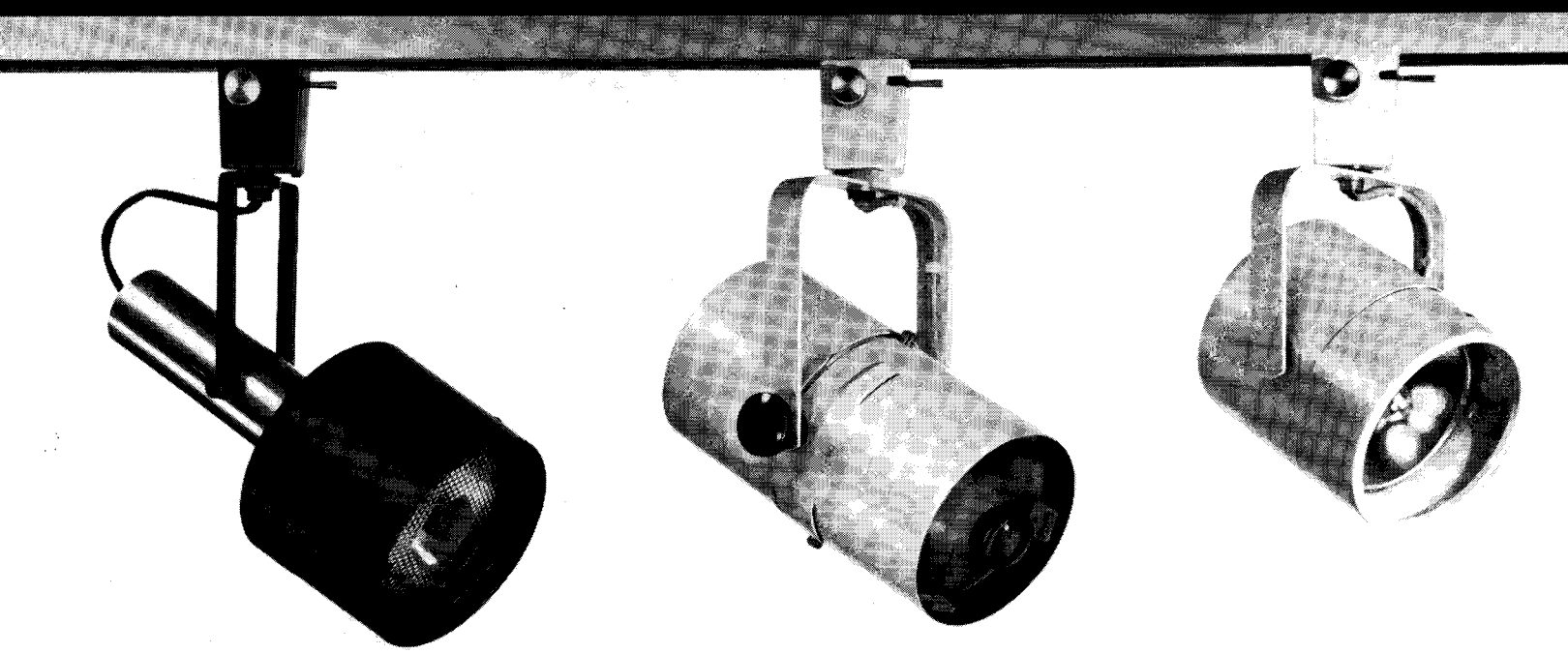
3. VERSATILITY. Lightolier offers the only two circuit track with lights that are also compatible with single track systems. That means all standard Lytespots fit all conditions: single circuit tracks, or either circuit of two circuit tracks. The track can be curved, recessed in wet or dry type ceiling construction. It is compatible with many other types of systems, such as those for modular panel displays and linear air diffusion.



4. SELECTION. Lightolier offers a range of lighting equipment broad enough to meet every requirement, including such special instruments as wall washers, low-voltage pin spots and framing projectors.

5. THE COMPANY BEHIND THE SYSTEM. With Lightolier you also benefit from our more than 65 years of experience designing and producing over 2,100 lighting products, both fluorescent and incandescent.

When you've considered the facts, you'll choose Lightolier. For a brochure illustrating the entire Lytespan system, write Lightolier, 346 Claremont Avenue, Jersey City, N.J. 07305.



LIGHTOLIER®

Lighting to see by, Lighting to look at.

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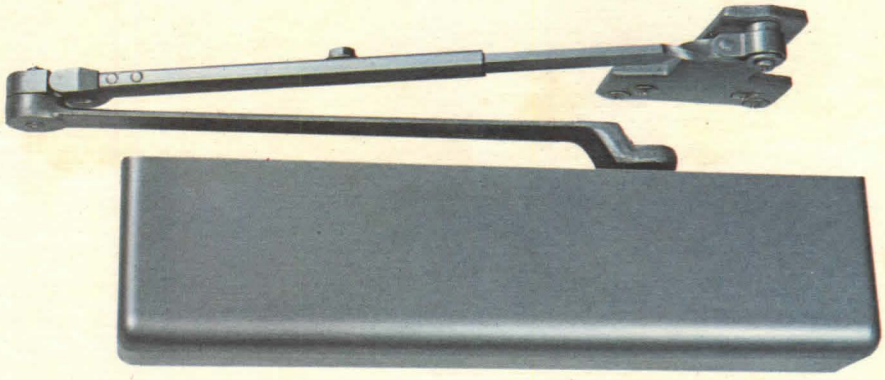
Power adjustment (plus or minus 25%) to tune the closer to its environment. An improved rack-and-pinion design plus adjustable back-check to protect closer and door on all types of mounting. Easy application with non-handed installation; just specify regular arm, parallel arm or top jamb.

Narrow projection for the needs of contemporary decor. With covers; in anodized bronze, brass or clear aluminum; in 67 exotic and native woodgrains for job-site finish; plus all other popular finishes.

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So Marlite paneling is ideal for walls in heavy traffic areas. Or where maintenance costs are a problem. (Just once-over-lightly with a damp cloth is all the "painting" Marlite needs.)

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